

First-rate research, the UGC and Government argue, is now so expensive that research funding must be more selective. In a special report, *THESE* staff look at the implications of the SELECTIVE RESEARCH POLICY, the assessment of research effort, the special problems of the arts and the role of research in public sector higher education... (pages 12 & 13)

... The public sector comes under close scrutiny again in Karen Gold's detailed analysis of the findings of the LINDOP committee on public sector degree validation (page 14)

Long before the advent of print UNIVERSITY PUBLISHING was already highly geared-up. Richard Rouse describes the Paris book-trade of the 12th and 13th centuries and his own search for St Thomas Aquinas's publisher (page 15)

Keywords: Albert Schofield re-reads *The Hidden Persuaders* and asks whether Vance Packard's account of American ADVERTISING in the 1950s is still relevant (page 17)



"One of the literary world's great deceivers". So afraid was he of the posthumous diggings of his biographers, THOMAS HARDY wrote his own life story, in the third person, and passed it off as his wife's work. Aidan Day reviews a new, restored edition of the remarkable *Life and Work of Thomas Hardy* (page 18)

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The poverty of planning

Those who have always doubted the need for a national board of higher education in Britain - that dreadful phrase "an overarching body" that brings to mind images of swartzy gym-nastics or rickety scaffolding - really must be abandoned - may have to review their scepticism when the Green Paper is finally published, probably in late May or early June. For it will demonstrate that the Department of Education and Science does not have the capacity to produce a serious forward-looking higher education policy.

Not that the Green Paper will be a disgrace. Despite the advance apologies already being offered by the paper's authors, it will offer a competent enough survey of the current preoccupations of ministers and a thorough enough review of that conventional range of policy possibilities so comprehensively rehearsed by the Leverhulme inquiry, the University Grants Committee and the National Advisory Body in their strategy advice, and the DES itself in earlier publications going back as far as the Brown Paper *Higher Education into the 1990s* in 1978. Nor is it really fair to criticize the Green Paper because it expresses no sparkling intellectual vision. HMSO is not in that line of business.

Yet as an exercise in policy making the Green Paper will be a disappointment. It will fail to carry forward the debate about the future of higher education, which will remain in the uncommenced stage of the Leverhulme final report and the NAB and UGC strategy documents. The Green Paper will fail to provide the positive leadership which higher education has badly needed and which approaches the "post-Robbins" age. Never has firm policy leadership been more necessary: in universities, polytechnics, and colleges enter the unknown territory of the 1990s, endemic resource constraint, possible demographic decline, accelerating technological change, insistent and unfamiliar political and social demands, and of course restless intellectual and cultural development.

The Green Paper will show that the DES does not have the vision or the capacity to capture a comprehensive picture of the great changes that higher education will experience in the remaining years of this century. Higher education policy will remain a jumble of Jarratt and Lindop, of the UGC's overenthusiasm for a selective re-

search policy to beat the research councils at their own game and of the NAB's latest schemes to sustain diversity while encouraging concentration. There will be no order, no coordination because only the DES can provide these. The Green Paper will clearly demonstrate that in higher education the DES is a policy laggard, rather than the policy leader. That will be the true measure of its failure.

It is not all the fault of ministers although they must bear the immediate responsibility. The reasons for this failure are many and deep-rooted. Some are straightforwardly political. One is that Mrs Thatcher's government is in the middle of its second term. Like all governments in this position it has run out of ideas. Its store of vitality and creativity is used up. It has gone into clear political decline. Such is not a time for imaginative political initiatives, especially in an area like higher education which never attracted much political attention even in the first flush of victory back in 1979.

Another is the growing conviction that whatever may be Britain's future in the 1990s it is unlikely to be animated by anything resembling "Thatcherism", in any case a phenomenon of very dubious intellectual substance that is mainly the product of fawning hype. The "ideology" of the present government has never amounted to much more than an unpalatable blend of traditional amateurism and Toytown utilitarianism. Unlike its predecessors, whether Labour or Conservative, it has no respected and sophisticated political and intellectual traditions on which to build. So the Government's overall policy has been unable to provide a vision or even a comprehensible context in which a more detailed higher education policy could be placed. The impact of high politics on higher education in the last five years has either been entirely negative (cuts, cuts and more cuts) or dangerously misguided (the disastrously under-considered £43 million "switch" is just the latest example).

But governments come and go. Departments go on for ever. Maybe a more interesting reason for the coming disappointment of the Green Paper is the falling administrative self-confidence of the DES itself. Maybe we are witnessing the death of a tradition, a tradition that goes back 30 years or more and created the colleges of advanced technology in the late 1950s, snatched the universities from the

Treasury in the early 1960s, overturned Robbins' recipe for a university-dominated expansion a few years later, established the polytechnics and bargained for the resources for the most impressive and expensive expansion of higher education ever undertaken in Britain. A formidable achievement, with of course only self-confidence that verged at times on arrogance, an administrative determination that occasionally shaded into high-handedness. Twenty years ago the DES could, and did, act as the final arbiter of higher education policy; it was its own national body. Today, when the need for and the difficulty of coordination are so much greater, the department's capacity has drained away.

The landscape outside the DES too has changed beyond all recognition. The National Advisory Body has been established to plan the polytechnics and colleges, a development that has intensified rather than diminished the urgent need for coordinated planning of the whole system. The University Grants Committee is utterly changed. The dignified theory of the UGC as a buffer between Government and universities was always probably too good to be true. But today the UGC is not only the administrative creature of the DES, which it inexorably became during the expansion of the 1960s and 1970s, but has now become the politicized creature of the Government, a far more dangerous development.

Yet the case for a national board for higher education cannot be made entirely in negative terms, persuasive as such reasons have become in our present incoherence. Perhaps the experience of the NAB is a small sign of the potential creativity of new institutions. Maybe a national board could reproduce in higher education as a whole the vitality that the NAB has been able to stimulate in the narrower field of the polytechnics and colleges. More generally a plausible case can be made for arguing that one of the great deficiencies of modern Britain is the inadequacy and amateurism of the infrastructure of the state. If the experience of our European neighbours is even an approximate guide, we need to reform our present institutions and create new and more professional institutions if we are to hope to compete, economically, socially, scientifically, intellectually - like a national board for higher education.

Off switch for polytechnics

Once could be dismissed as an accident, but for the Government to put all its "switch" eggs in the universities basket a second time would amount to more than carelessness. Yet, as decision time approaches for phase two of the £43 million programme to boost engineering and technology, a repeat performance is on the cards. Despite the howls of protest which greeted the initial allocations, it is quite possible that the likes of Essex and Lancaster universities will again be preferred to Hatfield or Leicester polytechnics.

That would be sad for the polytechnics and very inconvenient for the National Advisory Body, but still right for the country if the universities are the places which will best fulfil the aims of the initiative. After all, the money is not being spent for the benefit of higher education but as an investment for the economy as a whole by helping to provide a workforce skilled in the new technologies. If only the universities can attract students of the necessary calibre to increase the pool of talent available to industry, it would be foolhardy as well as uncharacteristic of the Government to include the polytechnics.

It seems that there is an influential body of senior industrialists who believe this to be the case and who are pressing for the second phase of the switch to go for more graduates to improve the stock of software engineers. But is this really the most productive way to spend £43 million?

It may solve some immediate problems in some leading companies, but the long-term effects are much more uncertain.

First, ministers must be sure that they will be increasing the total number of students in the new technologies, not simply transferring them from one sector to the other. The argument over the available pool of qualified candidates is by now well-rehearsed and there must be serious doubts about the potential for attracting new students without launching retraining programmes for scientists in other disciplines. The NAB may have over-stated its case that the supply is all but exhausted: there is evidence of untapped supply, especially among women. But the size of the pool is surely too uncertain to warrant a second phase which relies on qualified school-leavers.

Another danger is that an all-graduate programme might be too successful for the good of the teacher training sector, which must provide the people to inspire a better supply of candidates for the new technologies in future. There is a powerful argument that a proportion of the £43 million would be best spent in the schools anyway. Should the switch off all the best talent into industry?

Should the government opportunity to present it, the NAB could make an impressive case for the second phase of

the switch to concentrate on ensuring the supply of technicians. Since it is the public sector which runs the courses which would then become the beneficiaries, there is an obvious element of self-interest. But industry is constantly stressing the importance of good quality technicians, and this applies as much to the new technologies as the old.

At the very least, the NAB should be consulted about the second stage. Some of the Engineering Council's arguments for a university monopoly in the first year are suspect. In the extreme, it is certainly not enough to say that the polytechnics did not need to be included because they had carried out a switch already, and then to criticize them for inadequate funding levels.

Fifth Column

I now recognize that it would be better if I had come clean long ago and admitted that my father was a German. It would have avoided all sorts of misunderstandings and revealed the truth on the appropriate form for my present job.

It was sheer stupidity on my part to hide it because there had been earlier occasions when the facts surfaced. On our honeymoon, for instance, I had admitted it to my wife. We had compared notes and realized that while my father was relaxing in an interment camp in Scotland, her father had left Scotland and was carrying stretchers to no man's land on the western front. For a while it was difficult to speak to each other. Thirty years on, eight children later we have come to terms with the disgrace of my lineage.

Not that my father was in the For one thing, it did not seem to have been in his time; for another, I never spoke the language. But he was arrested in 1914 and interned in a camp on the American coast. I was on a visit to the camp asked him if there was anything he could do for me. He was not very well because he was earning a little money drawing portraits for the prisoners (threepence black and white, sixpence coloured) and had a full-time job. With nothing to do when I left, he volunteered for the British Army and was turned down on the reasonable grounds that he was a German.

But I have often wondered what bad effects such a disgraceful lineage must have had on me. So I looked into my ancestry from time to time. Notably when I visited Aachen in which the Nittgenen came, I ran up with my name to the telephone book I met some German relatives. One of them had been arrested at the end of the war and tried as a war criminal. I learned to paint during the war and was in an open prison in Britain. I also met a nice Breton girl who was married to a German.

If that was bad enough, the fact got worse as we delved further into the past. My grandfather had been thrown out of the German Army for misconduct. Possibly for fraternizing with women. It was bad enough, but descended from the German Army but initially worse if even the German army couldn't stand him. Yet these Germans seemed to be so funny.

No doubt, I thought, the British side of the family must have retained the balance. But on investigation I discovered that my grandmother's family had left Cambridge and spent some time in the west house. The shame of that had been carefully hidden for several generations. It was worse if I wondered to be descended from the German army or a workhouse? Almost impossible as a handbag.

On one matter however my father was totally innocent. He had never read, and probably never heard of, the *Daily Mirror*.

Patrick Nuttgren

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Treasury shown how lab costs outpace inflation

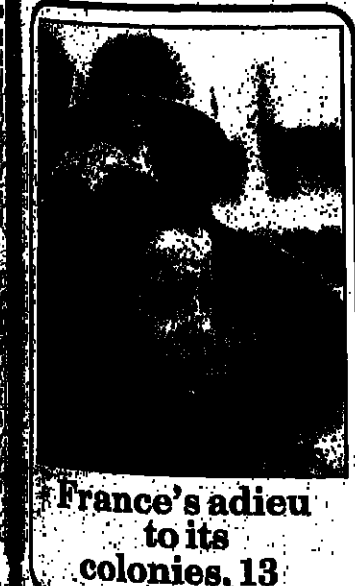
by Jon Turney
Science Correspondent

The Government's science advisers are planning a clear demonstration that research costs are rising faster than inflation, as part of this year's attempt to persuade the Treasury that "level funding" for science means a higher squeeze on laboratory budgets. Figures from the research councils show the average costs of grants are increasing steeply. And these are backed up by an independent study from the University of St Andrews which estimates a "research price index" of up to 8 per cent above the national rate of inflation.

The Advisory Board for the Research Councils, which advises the Secretary of State for Education and Science Sir Keith Joseph on the science budget, has asked each of the five research councils for figures on the average value of individual research grants.

The most spectacular result came from the Medical Research Council, where the average value of a research grant has risen by 13 per cent a year for the last six years. The ABRC will argue that if councils assess grants severely, and applicants ask for the cost of their projects, this indicates a steep rise in the expense of doing research.

Figures from the Agriculture and Food and Natural Environment research councils show a wider scatter.



France's adieu to its colonies, 13

European accent should be on exchange

by Olga Wojtas

BRUSSELS
Education is one of the most powerful ways of promoting European unity, the secretary-general of the Council of Europe told education ministers at a conference in Brussels this week.

Mr Marcelino Oreja, addressing the Standing Conference of European Ministers of Education, suggested that the 21 member governments could "sign" their commitment to unity through encouraging Europe-wide exchange of teachers, university students, and staff.

They could found university chairs in European studies to be held by non-nationalists and promote cooperation between universities.

but also reveal a rise ahead of inflation. But initial returns from the Science and Engineering Research Council, the largest, do not quite fit the pattern. The real value of SERC awards rose for the first three years after 1978/79, but the average size of grants then fell, whether measured by the amount asked for or the sum awarded. The ABRC secretariat has now written to each of the councils asking for further help interpreting the year-by-year changes.

The board is also examining results of a study on research costs by Professor Joe Lamb of the University of St Andrews, the chairman of an ad hoc group on research funding set up by a large group of scientific societies.

Professor Lamb looked at salary increases, which rose by between 1 per cent and 5 per cent above inflation; at recurrent costs in the physiology and physics departments in the university, which rose by between 6 per cent and 13 per cent above inflation; and capital costs, which went up by as much as 12 per cent above inflation. The recurrent and capital cost rises were estimated from actual purchases and from manufacturers' prices. Professor Lamb argues this gives a measure of the "sophistication factor" - which increases the cost of research as equipment grows more sensitive or more complex.

The overall result is a research price index calculated as between 2 and 4 per cent ahead of the standard retail price index. This means the five year fall in the buying power of the science vote lies between 6 and 25 per cent of the total, or between £70 million and £280 million at 1982/83 prices.

Although these figures are based on a small study, they are in line with other estimates, such as the 5 per cent a year figure for sophistication quoted in the Natural Environment Research Council's new corporate plan. They will help the ABRC get round the conviction that while all scientists are complaining, times have been getting harder, the uncorrected figures do not show any appreciable fall in the value of the science vote.

However, it is unlikely the ABRC will be able to use the term "sophistication factor" in its eventual submission to the Treasury, although it has been current in the DES for two decades. Sir Douglas Hague, chairman of the Economic and Social Research Councils, and a persistent critic of scientists' arguments poured scorn on the term last month in an article in *The Times*.

The conference's main theme, "Education and Training for Young People aged 16-18: Problems and Prospects" was of crucial importance for Europe, Mr Oreja said. In several member countries, young people made up 40 per cent of those unemployed. "The threat of unemployment is a threat to democracy itself," he warned. Many young people had been brought up to see education as a means of getting ahead, but they were now beginning to doubt the value of education and training.

"But the infection goes deeper than this. It goes beyond young people's view of education. It takes hold of the perception of society as a whole," said Mr Oreja.

Mr Allan Stewart, Scottish Office minister for industry and education, who led the UK delegation, said Britain's Youth Training Scheme had



Education hangs in the balance at the De Havilland College in Hertfordshire, where juggler Mr Tony Barratt has been tutoring an adult education class. Mr Barratt, a court jester to the Tudor banquets organised at the nearby Old Palace, Hatfield, was recruited by the college at Welwyn Garden City to teach the art of juggling to a class of 12 beginners last term.

'No' to teacher plans

by Patricia Santinelli

The National Advisory Body's teacher education group has come but strongly against Government plans to expand teacher training at the cost of institutions' other programmes.

The group has told the NAB board that it is extremely concerned that the increases are to be found without additional resources because these are vital to maintain quality. This has important implications for each institution's spending per student. It has become clear since NAB sent out its officers' proposals to institutions that most colleges and polytechnics face major difficulties in accommodating the increase by a reduction in social sciences and humanities.

Bulmer College of Higher Education

Education in Reading made plain this week that it was rejecting such a process and was joining with other institutions similarly affected in a campaign to get this policy withdrawn. The NAB has calculated that to fund the additional intake for 1986, 550 extra students or 715 weighted students based on an average spending per student of £1,400, would cost around £1 million.

If however all additional entrants to teacher training come from programme areas with a weighting of 1.0 and teacher training programmes' weighting rises to 1.5 as recommended by the inspectors, then the additional money needed would amount to only £385,000.

However should no extra money be continued on page 3

AUT to vote on pay strategy

by David Jobbins

University lecturers are planning a campaign involving one-day strikes, refusal to mark examinations and withdrawals from public bodies in an attempt to reverse erosion of their salaries.

Detailed plans are being drawn up by leaders of the Association of University Teachers and the union's 32,000 members are expected to be balloted soon on the general strategy, which includes a determination not to undermine the salary campaigns being waged by schoolteachers and college lecturers.

A final decision on whether to go ahead with the ballot will be taken by the union's council which meets in Glasgow next week. This is expected to give the go-ahead to the campaign which is planned for the autumn. The AUT has rejected an offer of 4 per cent, which is all the vice-chancellors say universities can afford. It is

Jarratt misleading say v-cs

by Peter Aspden

Vice chancellors have criticized some of the main findings of the Jarratt report on university efficiency, which they have accused of being oversimplified, misleading and largely unenforceable without Government help.

After keeping a low profile for more than a month on the report, they discussed its implications for universities at a Committee of Vice Chancellors and Principals meeting, and earlier this week met the Secretary of State for Education, Sir Keith Joseph to give their reactions.

They told Sir Keith that although Jarratt contained some useful guidance on streamlining management, much of the report did not pay enough attention to the unique difficulties of university administration.

Some vice chancellors felt that the main report makes many points which are not fully borne out by the six individual case studies. Another criticism was that the management consultants involved in the exercise were so unfamiliar with university management that they exaggerated the complexities of administration, which they did not fully understand or appreciate.

One vice chancellor said: "Jarratt is wrong, in despising consultants. This is not a bad managerial practice in universities. The work that matters is in the library and laboratory - you don't begin in the vice chancellor's office. So consensus management is not just a soft option."

"We must also resist in Jarratt what we believe to be mistaken. Vice chancellors are not presidents of companies. Every vice chancellor has to know that there are better brains than his in the infrastructure below. He is only a glorified office boy."

The vice chancellors also stressed to Sir Keith the criticisms made in Jarratt of the Government's abrupt and inconsistent policies towards universities, which forced them into ad hoc crisis management.

They told the Education Secretary Sir Keith Joseph that the report made no concrete proposals for saving money. "In the entire report you will not see the word 'waste', which is significant in that Jarratt was very much the son of Rayner," said the CVC chairman Mr Maurice Shock, who described recent meetings with Sir Keith as "resembling the courtesies of 18th century warfare."

Sir Keith welcoming the findings of the Jarratt report, this week asked the National Advisory Body to draw up guidelines on good management practice in public sector higher education.

Leader, back page

Letters to the editor

The emancipated administrator

Sir, - Your editorial on the emancipated administrator (*THE*, April 26) was a welcome recognition of the professional status and standards achieved by a group whose praises are rarely sung. But all is not rosy as your optimistic future scenario suggests. Indeed, polytechnic administrators are already victims of their own success as members of the conference workshop recorded. Academics, under pressure with current constraints, have passed on functions - some even, like admissions, quasi-academic - on the assumption that equally pressured administrators can continue to absorb work to an infinite capacity.

This provides one threat to profes-

sional status and standards; the important issues are being pushed up the organizational structure from faculty offices where pressure is greatest. The restrictions on recruitment and tight ring-fences for what appointments are made may also mean that some "anonymous clerks" may be promoted to posts for which they are not prepared, for which no development is given and which they see as a pinnacle of achievement rather than a platform for developing a professional career through promoting the development of the institution.

There is a problem, too, for the high-quality people recruited in the past, who got senior posts young

because they didn't carry senior salaries, being several thousand pounds a year below their academic colleagues and even further behind those with similar status in (smaller) universities. Many are women who have overcome an obstacle you didn't mention - the prejudices in a male-dominated environment. Now such people - highly competent and committed to the polytechnics - have to face the future realistically. Even though they are proven professional managers they are barred from senior management posts which go to academic amateurs; transfer to local authority offices offers little job satisfaction and low salaries and general university attitudes have cre-

ated a credibility gap in transferring across the binary line - which many do not want to do anyway because of their educational philosophies.

But I fear resource factors will be dominant here as elsewhere and colleges will be drained of individuals essential to their development, or will force them back through sheer pressure of trivia into the restricted professionalism from which they had escaped.

Yours faithfully,
IAN McNAY,
Faculty of educational studies,
Open University.

Science switch

Sir, - The National Advisory Body has declared itself surprised and dismayed at the decision of the Secretary of State to allocate entirely to the universities the first instalment of funds designed to "switch" students to science and technology. They should not be.

When the National Advisory Body decided to reduce the unit of resources for students on degree courses - a process, incidentally, which is being continued - the Association of Polytechnic Teachers pointed out that academic credibility could not be maintained at a level of funding so far below that of the universities. The majority on the NAB, whose interests were and are to spread higher education thinly, may have won the argument there.

Unfortunately for them - but even more so for those of us who have to make the system work - employers, teachers and prospective students are not interested in NAB's theories and go where they expect to find quality. Hence the decision of the Secretary of State, on the advice of the employers and the Engineering Council, to put the extra funding into universities. At the end of the day, as the APT has always said, it is the well-resourced universities which will be protected. May we hope that the lesson is well learnt?

Yours faithfully,
J. M. POWELL,
Deputy chairman
Association of Polytechnic Teachers.

Social graces

Sir, - As a matter of interest would the leading "social secretary" have been used by the new secretary to the Economic and Social Research Council had been a man? (*THE*, April 26).

Yours sincerely,
JANET LEWIS,
28 Melcombe Court, London NW1.

Professional Association of Teachers

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Asian recruits

Sir, - Under the title "Car sale methods used on students" the *South China Morning Post* has brought attention to bear on an extensive campaign by British universities to recruit students from Hong Kong; other traditional catchment countries of South East Asia are also the target of recruiting teams. The effect of such criticism, in Hong Kong particularly, is highly damaging to the fine image of British universities in this traditionally pro-British colony.

To the cynical, cut-throat competition for the overseas students could be interpreted either as reaction to a decline in home-based enrolment or as a means of attracting fee-paying students to offset financial cuts imposed by the University Grants Committee. The article referred to above alleges poaching, the lowering of entry requirements and the deriding of other universities. While it is difficult to determine precisely the extent of such practices, it is easy to affirm that universities from Britain and other countries have stepped up "off-shore" student enrolment. The report of 15 universities recruiting recently in Hong Kong, in fact, under-estimates the full extent of such activity. One British university despatched nine staff to Hong Kong and elsewhere for over three weeks. For these academic staff, the loss of home based time for research and teaching is substantial; the cost to the British taxpayer is vast.

As well, there are implications within the countries visited. Time, patience and the usual university courtesies are extended to an endless procession of overseas academics and



British universities are campaigning to recruit from Hong Kong

administrators. In the case of Hong Kong, increasing demands from universities in mainland China have also to be included. Clearly, five institutions of higher learning in Hong Kong can hardly be expected to establish links with a proportionate share of over 900 equivalent-level institutions from mainland China. Against this background of fact, and in view of the increasing competition from USA, Canada and Australia, it is expected that the newly established counselling service set up by the British Council to market British higher education will be well-used. Long overdue, this new counselling service deserves the support of all British universities interested in the recruitment of Asian students.

Marketing has contributed to the remarkable transformation and successes that typify Hong Kong. The services provided by the British Council will be marketing-type services; they will be fair and they will be well-conducted. The service promises to bring to universities more than the present discreditable practices. The British Council deserves the full support of the UGC and the wide array of higher education institutions concerned to recruit in these foreign parts.

Yours sincerely,
H. S. HOUSTON,
Academic vice president,
Hong Kong Baptist College.

Monkey research

Sir, - I have several observations concerning your article entitled "Monkey research cover-up claimed" (*THE*, April 5). This article dealt with how injury research conducted jointly by the University of Pennsylvania and Glasgow University, and a former Glasgow professor's warning that Glasgow's reputation could be damaged through its connection to those primate experiments.

First, your Washington correspondent, Mr William Norris, stated that an American animal rights organization, People for the Ethical Treatment of Animals, broke into the University of Pennsylvania laboratory and removed video tapes of the experiments. As legal counsel for the BETA, I object to this baseless and damaging allegation and demand that you issue a retraction immediately. The Animal Liberation Front, an organization whose membership is not known, publicly claimed responsibility for the removal of the tapes.

Second, Mr Norris stated that the laboratory had been inspected by the

National Institutes of Health and that "it passed muster." This is also incorrect. The NIH recently conducted a site visit of the laboratory in order to evaluate the technical aspects of the research. In a letter to me dated January 8, the NIH stated explicitly that this visit was not concerned with the allegations of animal cruelty or with the laboratory's compliance with other relevant animal-care guidelines. I was informed by the NIH that a separate NIH division, the Office of Protection from Research Risks, was responsible for monitoring the animal-care issues. This separate NIH office is currently investigating the animal cruelty charges and has not issued any report. Therefore, it is incorrect to say that the laboratory "passed muster" according to the NIH.

Third, the United States Department of Agriculture has determined that the Pennsylvania laboratory itself, as well as the facilities used to house the animals, fail to meet the minimal standards embodied in the federal regulations. In an inspection conducted by the USDA immediately after the Animal Liberation Front removed the video tapes, the inspecting veterinarian found 74 serious viola-

tions of the law and recommended that "all animals should be moved out of there immediately." The inspector explicitly noted the presence of cockroaches, mice and vermin droppings, and urine build-up throughout the facilities.

In a recent USDA inspection of the Pennsylvania laboratory itself, the inspecting veterinarian noted that "the sanitation, cleaning and housekeeping, and ventilation in these areas [the laboratory and primate intensive care unit] did not comply with the minimum requirements of the Animal Welfare Act."

Professor W. A. J. Watson, formerly a Glasgow University professor and currently my colleague at the University of Pennsylvania law school, has charged that the University of Pennsylvania is "obstructing access to the truth" concerning these tragic primate experiments. I join Professor Watson in this charge and in his plea to Glasgow University to disassociate itself from these horribly inhumane and senseless experiments.

G. L. FRANCIONE,
The Law School,
University of Pennsylvania,
Philadelphia.

Rights upheld

Sir, - Your report "Union gets tough" (*THE*, April 26) that the Association of University Teachers is planning to refuse to represent certain of its members, if they are expelled from the union, is a victory for the union's right to

question of individual rights and justice. A number of colleagues resigned from the National Association of Teachers in Further and Higher Education when help was refused in a dispute involving another. The members who were discovered that they had resigned from the Association of Polytechnic

Teachers provided representation for its members without prejudging the case or choosing to represent a junior member in preference to a senior member, it was assumed that that was the norm. If the AUT and the NAFHE impose a double standard on members involved in disciplinary matters, then the

Engineering designs

Sir, - In his article "Real and Imaginary Activity" (*THE*, April 26), Sir Keith Joseph, Secretary of State for Education and Science, met Sir Robert Clayton, chairman of the new Information Technology Skills Agency, and Mr John Butcher, the industry minister, this week to discuss allocations for the second phase of the £43 million programme.

But Mr Thatcher will stress that industry must pick up where the Government leaves off if the switch is to be real impact. She will be expecting offers of assistance with equipment and exchanges of staff between industry and higher education.

The invitation list for the meeting includes the chairmen or managing directors of most of the country's

by John O'Leary and Jon Turney

The Prime Minister will place the onus on the private sector to make the Government's initiative to boost engineering and technology fully effective when she meets some 30 of the most powerful industrialists in Britain in 10 days' time.

Sir Keith Joseph, Secretary of State for Education and Science, met Sir Robert Clayton, chairman of the new Information Technology Skills Agency, and Mr John Butcher, the industry minister, this week to discuss allocations for the second phase of the £43 million programme.

But Mr Thatcher will stress that industry must pick up where the Government leaves off if the switch is to be real impact. She will be expecting offers of assistance with equipment and exchanges of staff between industry and higher education.

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Dispirited approach of Esprit

The European Community's information technology project Esprit is a good idea but hampered by poor execution, says a House of Lords Committee report.

The Lords Select Committee on the European Community found the programme had poor project assessment and monitoring, paid too little attention to exploitation of new products, and partly duplicated similar national efforts like Britain's Alvey project. But the report says the European effort is a valuable attempt to set up a European-wide collaborative project in high technology.

Esprit - European Strategic Programme of Research in Information Technology - is a five-year, £900 million project to boost the European computer and communications industries and is the brainchild of Viscount Blizard Davignon, the former EEC commissioner for research.

Like the British Government's Alvey programme, it is a collaborative programme between industry, academic institutions and state research laboratories, with the added stipulation that projects approved must involve partners from two or more EEC countries. The research covers the whole range of new information technologies from robotics and artificial intelligence to office automation and communication systems.

The select committee says the programme could help the technology gap between European and competitors like Japan and the United States and thus help European companies win a larger share of the world market for information technology products. But the report warns that Esprit is taking resources from other important research areas like biotechnology. The committee says these should receive larger funds from the EEC without harming Esprit.

The committee criticizes the evaluation of project proposals in the first round of Esprit awards and says there is a suspicion that British firms and universities refused to release people of the right calibre to sit on Esprit committees. It says these are the people with most to gain from Esprit, so if there are bad decisions they have only themselves to blame.

Several witnesses charged that the European project was biased against small firms, a claim also often heard about the Alvey programme, and the committee calls for more encouragement for smaller concerns to apply for funds from Esprit.

It also wants more stress put on research into computer software, although part of the first allocation of funds for software projects had to be used elsewhere when applications fell short. Again, the report says small firms may be stronger in software development.

Selected Committee on the European Community, Session 1984/85, eighth report, ESPRIT. Available from HMSO, £11.40.

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Industry to boost switch

by John O'Leary and Jon Turney

The Prime Minister will place the onus on the private sector to make the Government's initiative to boost engineering and technology fully effective when she meets some 30 of the most powerful industrialists in Britain in 10 days' time.

Sir Keith Joseph, Secretary of State for Education and Science, met Sir Robert Clayton, chairman of the new Information Technology Skills Agency, and Mr John Butcher, the industry minister, this week to discuss allocations for the second phase of the £43 million programme.

But Mr Thatcher will stress that industry must pick up where the Government leaves off if the switch is to be real impact. She will be expecting offers of assistance with equipment and exchanges of staff between industry and higher education.

The invitation list for the meeting includes the chairmen or managing directors of most of the country's

biggest firms in the information technology field including Lord Weinstock of GEC, Mr John Harvey-Jones of ICI and Sir John Clark of Plessey.

Sir Keith's meeting was primarily concerned with the vexed question of whether to include the polytechnics in the next round of funding from the Government. Although no decisions were taken, it is understood that there was general sympathy for at least allowing polytechnics to bid for allocations this time.

Although not invited to consultations on phase two of the switch, the National Advisory Body submitted its case for the polytechnics to the new information technology agency.

The agency, set up under the CBI's education foundation following the first report from Mr John Butcher's committee on skill shortages, had its first meeting two weeks ago. The committee includes representatives of all the information technology firms who have been asked to comment on university proposals in the field.

In addition, there are observers

from the NAB, the University Grants Committee, three Government departments, the Manpower Services Commission, the Alvey Directorate, the Engineering Council and from Lord Young's office.

The agency which will appoint a director in the next few weeks, is expected to be the main forum for coordinating industry's response to the call for a "new partnership" in Mr Butcher's report. As well as vetting proposals from higher education institutions, it will try to match them with offers of help from industry. Members stress these will not necessarily be in cash, but more frequently in the form of secondments, offers of access to equipment, and arrangements for student placements.

It will also consider the role of distance learning, which may be developed through collaboration between the MSC and the Open University, and will use the Institute of Manpower Studies to keep an up-to-date picture of where skill shortages are likely to show up.



Boat race with a difference: members of a team of 18 who will set out next month on an expedition to row an Oxford University eight for 1,000 miles down the Peruvian Amazon.

Poly's teaching good, but drop-out rates criticized

Concern about withdrawal and failure rates on some courses at Lancashire Polytechnic is expressed in a report on its science and technology faculty.

But the report by HM inspectors concludes that standards attained by successful students were generally acceptable, often good and occasionally excellent.

The report also commends the staff for a high commitment to teaching and academic scholarship, and comments on the high level of research which the institution has attracted from external sources. The polytechnic was designated in 1973 as Preston Polytechnic and was renamed last September.

On the full-time degree course in combined sciences the inspectors found that most students entered with only modest A level qualifications. Of the first 40 cohorts to complete the course, only 40 per cent obtained degrees. Lack of motivation was identified as the major cause.

They also pointed to the part-time degree course in physics, where only

33 per cent had successfully completed the course over a five-year period.

The inspectors also commented on the polytechnic's increasing difficulty in obtaining sandwich placements in industry. Most students were being directed to other higher education institutions for work experience.

But they were generally impressed by the standard of teaching. Lectures were generally well prepared with the depth of treatment noticeably increasing in succeeding years to a level appropriate to honours.

Lancashire Polytechnic's science split into two separate divisions because of continued growth. Commenting on the inspectors' concern about failure rates on some courses, Mr Peter Young, the dean of the polytechnic's science faculty said: "These trends had in effect been reversed by the time of the inspectors' visit and all courses now have successful completion rates that are at, or rather better than the national average."

They also pointed to the part-time degree course in physics, where only

British overseas student share still shrinking

Britain's share of a growing market in overseas students is continuing to decline despite a levelling off in recruitment from abroad, according to statistics published today by the British Council.

The new figures - the first full analysis of enrolments in 1983/84 - show the beginning of the reversal in the downward trend in university recruitment. But overall numbers of foreign students coming to Britain dropped for the fifth consecutive year in spite of the start of the £46 million Pym package of targeted support schemes.

Indeed, the number of Malaysian students dropped by more than 1,000 despite the investment of £5 million from the package in a special scheme for Malays.

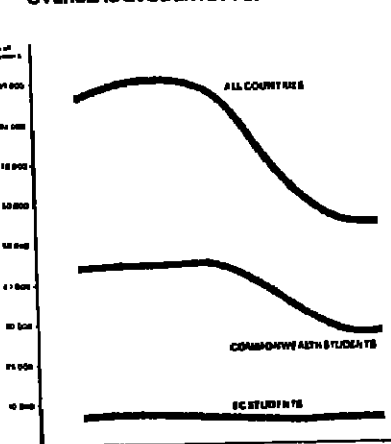
Although provisional figures for 1984/85 and early indications of applications for 1985/86 confirm that the steep decline which followed the introduction of full-cost fees has been arrested, enrolments continue to lag well behind the world trend. The British Council estimates that the number of overseas students worldwide continues to rise by 14 per cent a year.

The United States has encouraged a rapid expansion in its foreign student numbers and is increasing its USAID scholarship programme by 50 per cent in 1985. Japan is planning a tenfold increase in its numbers by the end of the century and the Soviet Union is still increasing its commitment.

Mr Derek Beard, assistant director general of the British Council, said the new statistics were not good news for a country which prides itself on its higher education. "Britain is losing out to our American, Japanese and French counterparts," he added.

The council's international survey

OVERSEAS STUDENTS IN UK



showed the little targeted trade schemes having little impact in key economic areas compared with other countries' efforts. The number of Chinese students, for example, increased by 6 per cent compared with a 31 per cent rise in the United States.

Hong Kong, another main beneficiary of the Pym package, took over from Malaysia as the sender of the largest number of overseas students. Of the other countries sending large contingents, only the United States, Libya, West Germany, Singapore, Kenya and Brunei showed increases on the previous year.

By far the largest increase proportionately was registered by Libya, whose 1,400 students represented an increase of some 50 per cent.

Statistics on Overseas Students in the United Kingdom, published by the British Council, Spring Gardens, London SW1.

London four get go-ahead for merger

by Peter Aspdren

London University planners have given the go-ahead to the proposed merger between Westfield College and the new King's, Queen Elizabeth and Chelsea College complex.

They decided to back the recommendations of a working group chaired by Sir Michael Clapham, vice chairman of the university court, which said the merger was the most effective way of securing the ethos as well as the academic facilities of Westfield.

"The decision ends speculation over the future use of Westfield's Queen's building, a purpose-built science block."

Professor Stewart Sutherland, principal of King's, said the use of the building would be an asset, but was not incompatible with the college's wider plans to centralize its activities.

The college was still going ahead with the acquisition of Cornwall House, just across the river from its main Strand site, in the not-too-distant future, he said.

"We believe Westfield has a distinct tradition and role to play, which we very much aim to keep alive," Professor Sutherland added.

"Both colleges also see this from a university viewpoint, and as a way of strengthening its arts base in what is bound to be a very difficult time ahead."

any final decision should be delayed

York union challenged in High Court

by David Jobbins

A student union's "no platform for racists" policy will be challenged in a legal action with implications for many institutions.

York University is seeking a declaration in the High Court that the no platform policy is a breach of the union's charter and common law.

An abortive speaking engagement by the Monday Club Conservative MP John Carlisle was the catalyst in the row. A meeting he was due to address was cancelled last autumn after action by the student union.

Mr Peter Smith, York's senior assistant registrar, said the union's action could not be ignored where a meeting was physically obstructed.

"Any member of the university must be free to invite anyone of any political persuasion to speak on any subject within the law," he said. "It is not the rights of the speaker so much as the rights of members of the university to hear and meet people."

Many universities and colleges adopted "no platform" policies during the late 1970s when organizations such as the British Movement tried to become active on campuses and when the National Front was adopting a high profile.

But the National Union of Students, which backs efforts by unions to deny platforms to self-declared racists, has consistently issued advice against devaluing the policy by extending it to right-wing politicians such as Mr Carlisle.

NAB group condemns teacher training changes

continued from front page

made available, and the 1985/86 spending per student is preserved. 1986 intakes overall would need to be reduced by approximately 275 full-time equivalent students. But it points out that to maintain access at the recommended level would only need a reduction of 0.1 per cent in the unit of resource.

The teacher education group is to meet in two weeks' time to discuss this, and consider institutions' replies, both to the closure proposals in

five colleges and polytechnics and to allocations throughout the public sector which were due in today. It is understood that so far only two institutions have accepted the NAB's allocations.

North Riding College in Scarborough, one of the five institutions threatened with closure, says that it is the group to reject the NAB secretariat's proposals, when it knows all the facts.

The college has told the NAB that any final decision should be delayed

until after a formal inspection by Her Majesty's Inspectorate this autumn. It says it has a strong tradition of primary training both in the BEB and POCE routes, and that it is not isolated from other institutions.

Herfordshire College of Higher Education is also urging rejection. The college, which has a long primary tradition, has told the NAB that it meets all the criteria for long term viability set out in its letter.

It is willing to join the local authority and the polytechnic in the develop-

ment of institutional arrangements most likely to safeguard the future of teacher education in the county.

Portsmouth Polytechnic, which under the present proposals would lose its faculty of education, is challenging the NAB's application of the viability criteria. It says this is not appropriate in the context of a polytechnic. It points out that in the last decade numbers have fluctuated between 300 to 1,000, and all were regarded as viable, and on that basis at 400 now, they are viable.

DON'S
DIARY

SUNDAY

One difference between holidaying in the Highlands and now being here for fieldwork is having to hew wood (literally) every day. Except today the pipe from the burn is frozen again in the latest cold snap. Phone the Bodach Bar for Andy the plumber and take bucket to neighbours' house for water.

It will make another anecdote to clinch my research methods teaching next term, as a change from my standard warning about the occupational hazards of excessive drinking when interviewing. Although in these parts of the Highlands, "wee drams" are preferred to tea, so interviewing, let alone getting home, becomes progressively more difficult.

MONDAY

Spend more time making cuts to Chapter 4 then adding to it. Monday is Mobile Bank day, so go to draw cash for trip to London. Jimmy, who has lived most of his life in the village and now supplies fresh salmon to "top London establishments", invites us in for coffee, although we have only met briefly once before at a coidh. Expect usual social preliminaries: "A little cold, the weather... How are you settling into your cottage?" How is the book coming along?

Instead, Jimmy says, "I've been meaning to ask your opinion of multinationals in advanced capitalism. It seems to me that most post-Marxist treatments fail to grasp the issue of control in terms of utilizing market processes against them, without ceding more power to the State. What do you think?"

Emerge two hours later, feeling like a student who has been the only one of his group to turn up for a tutorial. Home for a much needed restorative whisky and water. Except there is still no water.

TUESDAY

Judy has the "there's-a-lot-of-it-about" bug and is awake half the night with severe cataplexy. In Plymouth, this would mean going to surgery waiting in a room full of sick people, a further trip in the cold to the chemist. Here, I phone the district nurse who drives round straightaway. Over a cup of tea (is tannin poisoning an occupational disease of nursing?) she makes an initial diagnosis, then phones the doctor 26 miles away to confirm. From the range of antibiotics in her bag she hands out suitable tablets: the chemist will mail the bill later. She suggests that Judy sees the doctor on his next weekly visit to the village. During her second cup of tea, she mixes talk of her family with advice on scans, check-ups and giving blood.

Talk of her work turns to my interest in employment, training and career opportunities, and before long I am asking those old familiar questions: "So how long was your course? And what was the actual name of the qualification that you got at the end?" Water still frozen.

WEDNESDAY

Angus arrives with high-gain dogal, so rest of day devoted to lugging, holding, tool-passing and calling out which picture is better. He trained as a butcher, works nights for a transport firm, and puts up aerials in his spare time. Exchange information about black economy.

3pm. Angus, from the roof: "There's a devil of lot of smoke coming from that nextcroft. Someone's burning the heater to get the grass to grow for sheep."

Spun. He was right. Fire Brigade arrives to fight full-scale blaze. Wind sweeps flames across frozen ground, driving bricks and heater. Smoke everywhere. Judy and I stay in

traditional "what-two-objects-would-you-save-from-your-burnings-house" game. But this time it could be for real. She chooses the insurance policies, I my book draft. The flames get closer. What a time to have no water.

THURSDAY

2am. Fire not fully out but turned away by volunteers less than a hundred yards from neighbours' house. Of necessity, have had to learn to use a fire-beater quickly, stumbling about in the heat, smoke and half-darkness. Coming off the hill, chat for the first time to Murdo the volunteer fire marshal. Hear myself saying, "So you trained as a mechanic? Was that a five-year apprenticeship? And what was your first job?" This spirit of academic inquiry does not survive the neighbours' spontaneous coidh.

3am. Woken by phone. "Fire's up again. It could soon cut the road. If you are going south today, you'd best be off." Drive to Inverness, doze on train most of way to Edinburgh, sitting in a no smoking carriage. Leave things in office at research centre for social sciences and brave walk across George Square without coat or long-johns. Check Census Small Area Statistics. Am out of practice at using a big library: must be more tolerant of new students' difficulties in future.

Confidence restored by beautiful dusty, leathery smell of learning. Bit different from the village library, open Wednesdays 2 to 4pm, four bookshelves at the back of the play group. Leave message for colleagues about work on projections of demand for higher education before catching the sleeper to London.

FRIDAY

The "there's-a-lot-of-it-about" bug apparently catches the sleeper with me. Retreat to sister-in-law's flat, snatch two hours' early morning sleep. Woken by clatter from fire escape: Laurie Taylor on sabbatical in flat upstairs dropping his empty bottles down the rubbish chute. Collect antibiotics via the university clinic on way to Gray's Inn Road. Discussion of course-proposals still impresses, but disappointing that resubmissions continue to be so poorly documented, despite all the heavy bureaucracy of internal validations.

Even "mature" polytechnics display top-down controls and not enough genuine lecturer involvement. Is it just that makes the debate on more general issues seem stale? Relations with the National Advisory Body, reorganization of the Council for National Academic Awards partnership: nobody has anything new to say. Go on to Macmillan, meeting of editorial board for new British Sociological Association series. Make lofty and lunatic suggestion that each of us reads manuscript for topics on which we are not expert, to see how accessible they are to non-specialists. Suggestion accepted. We shall bitterly regret that in days to come. Blame the flu. Phone Plymouth for fortnightly bulletin: told director has referred to social sciences as the "Cinderella faculty". Catch sleeper for Inverness, abandoning plans for weekend in city, bookshops, Renoir etc.

SATURDAY

Lord car with fresh vegetables, meat, heater element, draught-proofing, whisky and other neighbours' messages (groceries) not easily or cheaply available in village. "The Little Community" doesn't mention having to shop 30 miles away. Drive back, keen to catch up on local versions of the flu. To standard list of community segmentation: young/old, male/female, farmer/fisherman, local/white settler/bongly (the local term for summer visitors) - will have to add burners/non-burners.

The more I see of village life, the less confidence I have in anthropology. Will have to stick to demography. Reminds me, must get the micro set up next week. If the cottage has not been burnt down. Which it has. That calls for a whisky and water before unpacking. Hold glass under tap: still no water. Now, where's that bucket?

Geoff Payne

Accounting review is urged

by Peter Aspdon

Universities have been urged to revise their accounting practices and adopt a uniform system for presenting their finances.

The move comes from the Committee of Vice-Chancellors and Principals, which has issued a set of guidelines and prepared a draft statement of recommended accounting practice for universities.

A CVCP working group was formed in 1982 under the chairmanship of Professor Geoffrey Sims, vice-chancellor of Sheffield University, to consider universities' accounting practices, but its report has only been circulated this week.

It urges universities to maintain adequate reserves to ensure their continued viability and to make proper provision in their accounts for items, such as the repair of buildings and the replacement of plant in order to give a true and fair view of their financial position.

The report said that universities had so far concentrated on their own needs when presenting financial information, but there was now a wider

audience which had a "legitimate use for information concerning the financial position of individual universities".

The wider audience included decision-making bodies, academic staff, students and other employees within the university, and other universities, the University Grants Committee, Parliament, loan creditors and business contracts.

For internal decision-making groups, a university's published accounts were the "definitive statement of the university's financial stewardship" and acted as a verified check on earlier budgets and a basis for future estimates, said the report.

A university's financial statement should comprise the following, which should be audited: an income and expenditure account relating to teaching and research activities; a balance sheet; and notes on the accounts, which should include accounting policies and a statement of source and applications of funds.

The income and expenditure account should include endowment income, and income for research grants and contracts, while invest-

ments should be shown at cost, permanent diminution of value written off to the income and expenditure account.

Gifts and donations, such as works of art and other valuable artefacts, should only be included in financial statements in the unusual case of their sale.

The new guidelines provided by CVCP are in line with the findings of the recent Jarratt report on university efficiency, which urged universities to play a greater role in national universities to adopt best practice.

A CVCP official said: "We started this statement a long time before the Jarratt committee was set up, but it has taken a long time because we have sought the views of universities, auditors, the University Grants Committee and other bodies."

The ASC will now look at guidelines for a further two years, suggest any adaptations, before accepting or "franking" the CVCP statement.

Students win travel promise

by Carmel McQuaid

Mr Nicholas Scott, the minister responsible for education in Northern Ireland, has agreed to review arrangements for student travel awards - after a year's intensive lobbying by education boards, politicians and public unions.

He plans a survey of Northern Ireland students and if they appear to be worse off than their peers in England and Wales, he has promised that steps will be taken to alter their position. He has not, however, committed himself to the Social Security which retains the principle of reimbursing travel costs.

The travel awards fund began a year ago when Mr Scott decided to maintain parity with England and Wales. This meant new students could no longer make individual claims for fares over £50 reimbursed in full. Instead, £100 for those living away from home and £160 for those near home with their family included in the grant. Continuing students are reimbursed for travel costs which exceed £310 in the case of home-based students and £250 for others.

Students unions were up in arms, protesting against a party rather than a party of treatment with English and Welsh students. They pointed out that the plan for "special circumstances" which had been grounds for Social Security. A high proportion of Social students live at home and commute to university daily.

The minister, however, was not deterred and brushed off objections. The five education boards conducted a survey of 50 students from each area which demonstrated that while gains and losses varied with the area, only 46 of the 250 were better off.

Using these findings as ammunition, the education boards presented the minister with a detailed submission which attacked the new arrangements as "indefensible and entirely inappropriate in the context of Northern Ireland". They urged that the situation be reexamined without delay.



Open college: Kimberley Smith, a sculptor from Loughborough College of Art, built this temporary perch 20 feet above ground as part of Leicester Polytechnic's "Design Village" last week. The event, the first of its kind in Britain, brought together students from all over the country, all living in self-built dwellings while they attended lectures and seminars on design.

Toast for the globetrotters

Three professors have travelled a total of 50,000 miles to address a seminar at Edinburgh University being held today and tomorrow.

Geographer Professor Graeme Wynn, of the University of British Columbia; historian Professor Douglas Cole, of Vancouver's Simon Fraser University; and sociologist Professor Michael Hill, of Victoria University in New Zealand, will speak at a comparative studies seminar on Canada and New Zealand, organized by Edinburgh's centre of Canadian studies.

The seminar will include papers on comparative conservation policies, the impact of gold rushes, the origins of national identity, and a study of a Highland community who followed a charismatic preacher first to Nova Scotia and then to New Zealand.

External assistance for the seminar includes a consignment of New Zealand wine from New Zealand House in London - it will be used to toast the seminar's success.

The National Environment Research Council is pressing ahead with the changes outlined in its new corporate plan in the face of strong objections from trade unions representing NERC staff.

The council has advertised for three new £20,000 a year directors of science to run its programmes in earth sciences, marine sciences and terrestrial and freshwater sciences. The posts will be unique in British scientific administration in the breadth of their responsibilities for coordinating research in a wide range of disciplines. Although the council's new plan, which calls for less of 900 jobs over five years, has been approved in outline by the Advisory Board for the Research Councils,

some ABRC members are doubtful if scientists of the right calibre will be prepared to take on the new jobs.

The unions are more concerned about the job losses, and what they regard as the lack of opportunity to discuss it. The union side response says this "has caused immeasurable harm to the relations between the two sides of the council".

The union side argues that the council should have drawn up a scientific life plan first, rather than setting manpower targets to fit future financial guidelines. The paper also opposes the proposed transfer of funds from council institutes to university grants. The ABRC Councils, the Institution of Professional Civil Servants, the

Society of Civil and Public Service, and the Civil Service Union, all support the corporate plan, but the unions are more concerned about the job losses, and what they regard as the lack of opportunity to discuss it.

The unions also want an agreement that there will be no redundancies and say they will oppose the introduction of more staff cuts.

Although the document includes a detailed implementation plan, which is resisted, the unions threaten any specific action, which is not met.

Minister is unmoved by medics' plea

by Jon Turney

Science Correspondent

The shedding of hospital beds in London will not be slowed down to safeguard the interests of the capital's medical schools, the health minister Mr Kenneth Clarke told the House of Commons Select Committee on Social Services last week.

The committee chairman, Mrs Renee Short, told Mr Clarke London medical deans were worried that running down some inner London hospitals was making it difficult to arrange clinical teaching. But Mr Clarke said it was a key policy commitment to reduce beds in London, and he hoped medical schools could make arrangements with satellite hospitals to satisfy their clinical teaching needs.

"I'm not going to keep open hospitals we don't need simply because medical schools refuse to teach elsewhere," he said, although he stressed things had not got so bad yet.

Mr Clarke was also questioned about the effect of the 1981 University Grants Committee cuts on medical teaching and research, the subject of an earlier inquiry by the social services committee. He said the reduction in clinical posts in universities brought about by the cuts had been more than offset by an increase in health service appointments. And while there had been some effects on research, they did not appear to have been severe, in the minister's view.

He said some universities had made up for shortfalls on the research budget in medical schools by attracting alternative funding.

New director for Courtauld

Mr Michael Kauffmann, keeper in the department of prints and drawings and paintings at the Victoria and Albert Museum, is to be the new director of the Courtauld Institute of Art, subject to ratification by London University senate. He succeeds Professor Peter Lasco.

Mr Kauffmann, 54, has held his present position since 1975 and has been at the V and A for 25 years. He was trained as a medievalist and has spent most of his career cataloguing European paintings.

After Merton College, Oxford, he was a junior research fellow and then assistant curator at the Warburg Institute.

One of his tasks will be to assist in a proposed restructuring of art history at London University.

Row over loss of union seats

Staff unions at Glasgow College of Technology are opposing the proposal that staff representation on the new board of governors is to be reduced. The Secretary of State has laid before Parliament regulations which will change the college's status to that of a central institution, and to establish a governing body.

He has appointed Mr John Wotherpoon as first chairman of the governing body. Mr Wotherpoon was formerly managing director of Singers, Clydebank, and is currently vice chairman of the college's council.

Mr Desmond McNulty, Educational Institute of Scotland branch secretary at the college and chairman of the joint trade union liaison committee there, said that staff representation, currently seven on the college council, will be reduced to four on the new governing body. (TESS)

Appeal proposal limited to research students

Vice chancellors have approved in principle a paper by the Reynolds committee on academic standards which proposes that research students should be able to appeal on academic grounds against assessment of their work.

The move had been considered controversial, as it was thought to allow a "slippery slope" to develop which would undermine the convention that academic standards cannot be questioned. But vice chancellors' reservations have been allayed by assurances that the new proposals will apply only to research students. Many of them were keen to back a move which increased the public accountability of university decisions.

The chairman of the academic standards committee, Professor Philip Reynolds, vice-chancellor of Lancaster University, said: "There is a very clear distinction between research students

New inservice fund 'would aid FE'

by Patricia Santinelli

A new general grant for the funding of inservice training in further education and a national advisory body and staff appraisal scheme have been recommended to the Secretary of State for Education by the Government's advisory body on teacher training.

The Advisory Committee on the Supply and Education of Teachers also wants the Government to set aside interim funds to finance the immediate expansion of training for education management which is the subject of a separate report.

The ACSET says in its final advice on this sector - it was drawn up by Sir Keith Joseph last week - that the new general grant for inservice training in further education should be introduced alongside specific centrally-directed funds.

It says that the new grant should be set at 5 per cent of the cost to local authorities of employing further education teachers already proposed for inservice training in the schools sector.

Because this has to include initial training, the committee believes the proportion repayable to local authorities should be higher.

The committee points out that the general grant approach is attractive because it would enable local authorities to give higher priority to staff development for further education teachers in terms of the resources available.

"We firmly believe that the present level of activity is too low and that even allowing for effective use of existing resources, additional funds for inservice training in further education are required if institutions are to respond adequately to the broad range of training needs that present themselves," the ACSET says.

The ACSET wants a national consultative body to be set up which would bring together the major parties interested in the development of further education. It adds that it would be desirable that any similar arrangements for the school sector should allow discussion of areas of common interest.

Moreover the committee believes that a systematic review assessing needs in further education would be a valuable exercise. The complexity of this task would require each institution to adopt a coherent and systematic approach to staff develop-

ment including the appraisal of teachers.

The introduction of an appraisal system for further education lecturers is again stressed in the case of education management, although no further details are given as to how this would operate.

It points out, however, that additional funds will not be enough to produce an expansion of education management training on the necessary scale without additional central funding. "For this reason we would favour a specific grant regime of ACSET for the inservice training of school teachers, provided that the scale of such a grant was sufficient to promote a major increase in the total amount of inservice training for further education teachers," the committee says.

Mr Cecil Robinson, a lecturer at South Kent College of Technology, failed to win one of the 21 places open in the first round of elections to the executive of the National Association of Teachers in Further and Higher Education.

Now the union's national council, the electoral college which chooses the executive from its own membership, is voting to fill the final place. Mr Robinson, who is eligible to stand for election as an ex officio member of the national council, faces a challenge from two left-wingers.

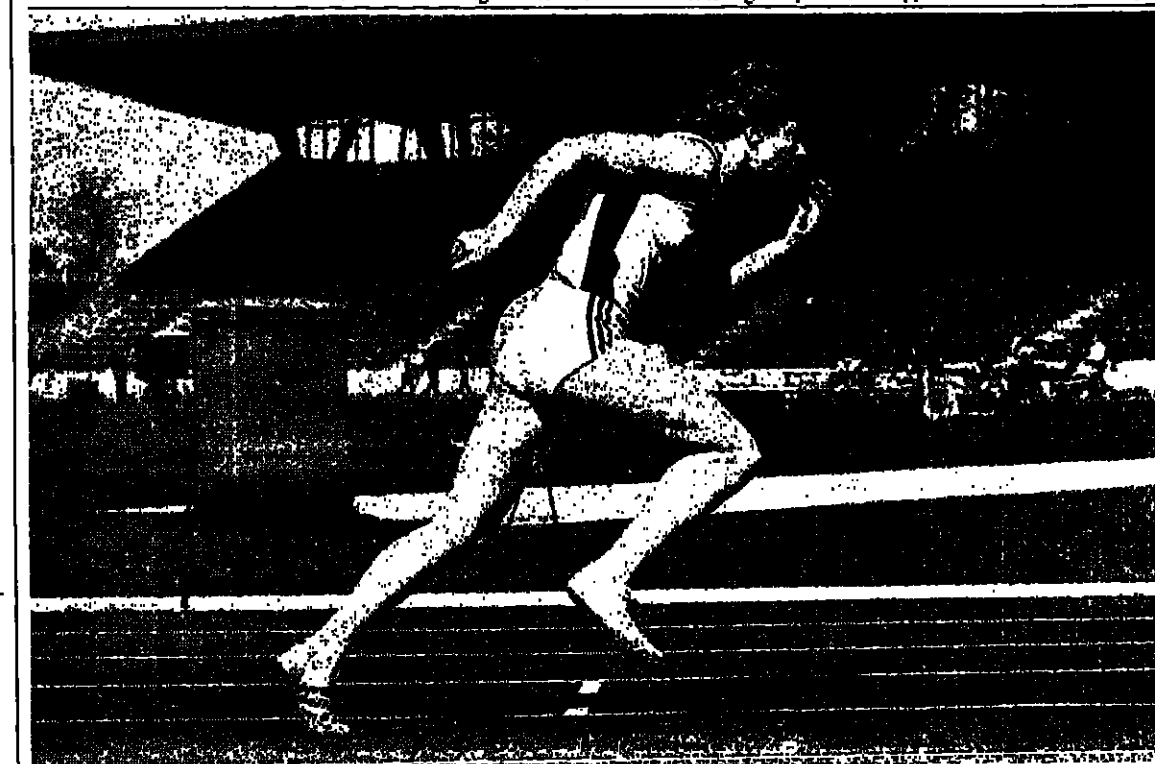
Mr Robinson, who has made no secret of his disagreements with the left on the executive but has earned widespread respect for the way he acted as president, was elected vice president in a ballot of the membership in 1982. He became president in 1983 and during 1984/85 had an automatic seat on the executive.

But under the union's rules he has to seek reelection to the executive for 1985/86. Mr Robinson believes he has been the unintentional victim of a hard left plot to remove two mainstream left-wing members of the executive. The scheme went wrong, as the planned targets survived and the candidates who were intended to replace them ended up in the final run-off with Mr Robinson.

This week Mr Robinson said it would be "less than helpful" to Natfhe if a Liberal was removed from the executive a few days after the county council elections which had made the Alliance a more powerful force in local government.

A quarter of the local education authorities in this country will be in a position where the Alliance holds the balance of power. If Natfhe were to be deprived of someone with reasonably good contacts with the Liberal Party seems damned silly."

More than three quarters of research staff in Scotland now have the full statutory entitlements. (TESS)



Edinburgh University student Lindsey MacDonald is making a come-back to international athletics after being out of action for two years with an injury to a leg muscle. Lindsey, a third year chemical engineering student, was a bronze medalist in the 100 metres at the Moscow Olympics. Her return to a major outdoor competition came at the weekend when she won the 100 metre and 400 metre events at the UAU/BUSF athletics championship at Crystal Palace. She hopes her performance will have convinced the selectors, and that she will be picked for this year's World Student Games in Kyoto in August.

Tribunal told of 'cloak and dagger' approach

Principal lecturer at Teesside Polytechnic Sukhu Ramoutar had a "cloak and dagger" approach that made him unsuitable as a potential head of department, a Middlesbrough industrial tribunal was told.

The 49-year-old West Indian economics lecturer was unsuitable for the job of head of the business and professional studies department at an external academic assessor said yesterday.

Mr Richard Wilson, a senior lecturer, and head of accounting and financial management at Sheffield University, was a former external examiner and assessor at Teesside, and said Mr Ramoutar had a "cloak and dagger" approach.

He said Mr Ramoutar was an "ordinary individual" and that he lacked the necessary leadership qualities. Mr Wilson was giving evidence on behalf of Cleveland county council.

Mr Ramoutar, of Charlton Park, Nunthorpe, is claiming racial discrimination against the county, after he failed to get the job of head of department last year.

Morale among staff at the department had sunk to a general low under retiring head Mr Henry Bridger, said Mr Wilson. Mr Ramoutar, who had

been acting as an unofficial deputy, would not answer the need for a different kind of person within the department.

Mr Hector McLean, a polytechnic governor from 1979 to 1984, who was on the interview panel, said there were three candidates who came out better than Mr Ramoutar in the interview.

There were two sets of interviews. All the candidates in the first interviews were felt to be unsuitable, including Mr Ramoutar, so the polytechnic re-advertised the post.

He learned that Mr Ramoutar had approached the Race Relations body in Cleveland about the job situation, and so advised Dr Michael Longfield, the polytechnic director, to invite all the interviewed applicants to reapply.

But his opinion of Mr Ramoutar's unsuitability was confirmed in a second interview. He denied that he had questioned Mr Ramoutar in a hostile manner, although said he had tried to be penetrating.

Mr McLean said the panel had not discussed Mr Ramoutar's colour, and the decision it had reached was irrespective of Mr Ramoutar's race. The case proceeds.

Some universities already allow limited challenges on academic grounds, and all allow procedural challenges, although these are usually protested.

The chairman of the academic standards committee, Professor Philip Reynolds, vice-chancellor of Lancaster University, said: "There is a very clear distinction between research students who may know more about a subject than their examiner, and those who are examined within the framework of courses. There is no question of extending the principle to undergraduate students. It is a totally different problem."

Ex-president in danger of losing seat

by David Jobbins

The only Liberal on the executive of the college lecturers' union risks losing his seat less than a year after ceasing to be its president.

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In September
The Times Higher Education
Supplement

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Plunging back into the gloom

"No university will be treated worse than 1/4 to 2 per cent below the average treatment next year." This bold statement from the University Grants Committee heralded what we believe could be the start of the selective decline of the strength and consistency of quality in our universities. All the indications are that the UGC, once it has received universities' research plans, will make a virtue of necessity and aim for even more substantial selectivity after the first year of differential funding. To them that hath will more be given.

Over the next three years, the UGC forecasts that it sees the overall grant rising by less than 3 per cent per year in cash terms with a continued shortfall of 2 per cent per annum to the end of the decade. By then our university system will have lost one-fifth of its Government funding in less than 10 years. This is during a period when the need to invest in higher education as a basis for the future economic, social and cultural well-being of the country has become increasingly obvious to all but those who will not see.

The damage already done by expenditure cuts to the research and teaching capacity of British universities is unprecedented internationally and will take many years to repair. In national terms the Government's attitude to university funds is suicidal. The realization of the savagery of the attack has been slow to dawn on academics. The 1981 cuts were seen by many as a 'set back' from which institutions could now begin to move forward. They were encouraged by the unexpected buoyancy in the UGC strategy advice to Government demanding at least level funding. The mood was almost Churchillian: the struggle back to the sunlit uplands had begun. In one fell swoop the UGC has changed that attitude. It has accepted without a fight that its advice has been rejected.

Any glimmer of expansion, of development, of progression, has been extinguished. We knew that the Government's 2 per cent per annum cut would damage the system; the UGC, by its selectivity proposals is in grave danger of inflicting even greater damage on universities. It will destroy the opportunity for whole departments or indeed, perhaps for whole institutions, to attract external funds for research. For these departments or institutions, there will be no path back into research at a later date; they will have permanently lost the opportunity to do research.

Unless they think again, the UGC may well dissolve for many academics the productive partnership between teaching and research. The end result may well be institutions with departments doing no research. Such institutions cannot survive as universities. Existing selectivity can encourage flexibility and responsiveness, but recognizes the autonomy of institutions in determining the level and extent of research activity. The UGC's proposals combined with the Government's further cuts will ossify the system and will deprive individuals, departments and institutions, and ultimately, the nation of valuable and worthwhile research opportunities. A short-term reprieve is not enough. UGC members must reaffirm their commitment to long-term planning and to the fight for resources. They cannot throw in the towel now.

Diana Warwick

The author is general secretary of the Association of University Teachers.

Social scientist takes on a weighty problem

by Karen Gold

When Michael Harrison, the new director of Wolverhampton Polytechnic, needs to work out a problem he works out with the set of weights he keeps in his garage.

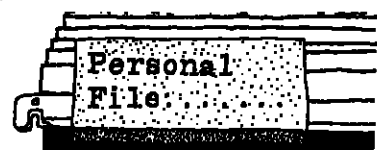
Private weight-training is typical, say colleagues, of his unostentatious style. A sociologist with a considerable breadth of academic interests, he tends to pass around papers which other people would publish, according to another poly director.

At Wolverhampton, where he went in January 1982 as assistant director and dean of social science, he is known as both popular and a strategist. "If something entails spending time in the bar chatting to people, that's what he'll do," said a colleague.

He also works notoriously hard: his car is first in the morning and last out at night. He was appointed Wolverhampton's deputy director in January this year, and has been acting director since the retirement of Mr George Seabrooke.

Now 43, he started academic life as a lecturer at Enfield College of Technology, going via Leeds University and Sheffield Polytechnic to Hull College of Higher Education in 1976, and as assistant director there overseeing the huge course expansion and staff development that transformed Hull from six colleges to a quasi-polytechnic.

So he has extensive experience of the Council for National Academic Awards network; a year ago he was roped in at another polytechnic to give



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staff a taste of CNAA inquisitorial style before they encountered the real thing.

He also serves on a number of CNAA boards. But his attitude to CNAA is pragmatic, he says. "The CNAA is willing to debureaucratize and liberalize validation, then in favour of sustaining and fostering the link with CNAA; if they don't then I'm not," he said.

But he is not interested in bidding for university status or a university-style academic profile. "The strategy will be to enhance and consolidate initiatives already set in train to develop it as a community resource, not to develop an open college relationship with the tertiary colleges," he said.

But although he will be supportive of social science courses in a national climate - social science poly directors are few and far between - stresses the need to develop services for declining local industry.

Row over Magee block-out

by Carmel McQuaid

Proposals to site three new blocks, occupying in all 7,000 square metres, in front of the main Magee College building in Londonderry, have started a dispute between the college and the town.

The interconnecting buildings, to be ready by 1987 as part of Magee's expansion as a University of Ulster campus, will create twice as much building as now exists on the 11 acre site.

Local residents and environmentalists have been quick to protest, with a series of meetings, one of which was addressed by the Magee provost, Professor Robert Gavin. Their chief objection concerns the lovely sandstone building with its little Gothic spires which, if the plans proceed, will be hidden from public view, robbing the city of one of its most imposing attractions.

The view from the college overlooking Lough Foyle and the River Foyle, will be obstructed, making nonsense of the plans taken by planners in 1965 to make the most of Magee's pleasant location.

Ulster's North West Architectural Association has been particularly vocal in its opposition, arguing that much of the greenery, which is a main glory of the college, will have to give way to car parking space. "Everybody is in favour of a university at Magee but we are most concerned that it is done in a proper manner. Aesthetics cannot be sacrificed to advance education," said architect Joe Tracey.

The environmentalists insist that an



Magee's Gothic facade; complete with breathtaking views

easy alternative exists - the college owns six acres on the Dunreagan Road which would accommodate one of the buildings. A second could be sited where the Dill Building now stands, since the once a students' union, has been earmarked for demolition because of dry rot. The third block could go on the end of the forecourt, where it would make minimum impact.

But the provost says the campus area that can be used for new building is extremely limited. The lawns, like the building, are listed and a Second

World War bunker in a crucial part of the site, presents an obstacle.

To move to the six acre playing fields in Dunreagan Road would entail splitting the academic function, a policy frowned on since the 1960s. Professor Gavin further argues that the university's architect has devised low buildings that will not conflict with the original one. Features have even been introduced to reflect the Gothic characteristics.

The town council's verdict on the university's request for planning permission has not yet been decided.

Climbers driven up the wall

by David Jobbins

Poor facilities for climbers to practice their skills at universities and polytechnics are driving the British Mountaineering Council up the wall.

A survey carried out by the council shows that only a handful of climbing walls erected in universities and public sector colleges are adequate. And the council's technical officer, Mr Ian Dunn puts the blame on architects who have failed to take advice from experts.

Writing in the council's magazine, High, he says: "They often tried to over-simplify natural features and re-created them in an unrealistic way."

In many cases unsuitable materials had been used with brick and concrete rather than natural rock creating steep, textured walls "more compatible with 20th-century art than rock climbing."

Those located in sports halls must often be positioned badly, seeking artificial height rather than avoiding conflict with other sports. "The architectural profession are on the whole guilty of a massive waste of public funds," Mr Dunn says.

Of 234 climbing walls surveyed by the BMC, 43 (17 per cent) were in universities or colleges. Only three universities or college walls out of a total of 15 throughout England and Wales were considered very good and these were at Brunel University sports centre, Leeds University and Charlotte Mason College in Ambleside. University, Teesside Polytechnic and Bolton Metropolitan College were said to be "worthy a visit" while the remaining 11 were described as "inadequate".

Aston, Leicester, East Anglia, Surrey, Kent, Essex, Warwick City, Surrey, Bristol, Exeter, York, Lancaster, Liverpool and Manchester universities all fell into this category, as did London University's Queen Mary and Goldsmiths' Colleges, and Trent and Hatfield Polytechnics.

Mr Dunn believes many walls are not worth modifying, because of the expense involved. A good wall built by a professional consultant should cost the same as a squash court, he says, and should incorporate natural rock, placed by a "rock-literate" climber.

One stumbling block to progress could be the recommendation that the local education authorities should provide the core money for staff and office space.

Mr Donald Grant, UDAEC chairman, said that the redistribution of 1 per cent of the budget of the local education authorities could provide that money by avoiding overlap and waste.

The Inner London Education Authority has already provided this long-term money to set up guidance centres in all boroughs.

The centres had exposed a large, untapped demand for education, said Ms Sue Thurston of Hammersmith and Fulham education advice service who said they had taken on an advocacy role, helping people get into institutions "which set up barriers on race, sex or age grounds and for totally arbitrary reasons".

"This sometimes put them at loggerheads with the funding authority which was also getting an increased demand for discretionary awards but the centres were sufficiently independent to be able to take up individual cases."

Chinese abandon tenure system

by Geoffrey Parkins

Many of China's universities and colleges are abandoning the tenure system and introducing one year personal contracts in a bid to increase teaching efficiency.

Under the new system all university staff, including lecturers, researchers and professors, will be under individual contract to the chancellor, dean or a department. They will decide when the contract expires, whether staff will have their contract renewed, be transferred to another department or fired.

The main aim of the new reform is to achieve greater teaching efficiency by improving expertise at all levels. Staff may move or be moved to where their skills will be of benefit most, or where there is a shortage of appropriately qualified personnel. Poor or incompetent teachers can be demoted or sacked.

To the western teacher China's new contract system will sound heartless. It is expected to have many undesirable consequences: it will make teaching in further and higher education a risky and uncertain career, and open the system and staff to abuse from individuals in authority.

But the advantages and security of a guaranteed income for a set period of years, provided by tenure or medium-term contract in the west, simply do not apply for most teachers in China because there is almost no difference between being in or out of work in terms of income and living standards.

The authorities, however, seem convinced both of the inflexibility and inefficiency of the old tenure system and of the many benefits that one-year

contract teaching brings to many universities and colleges. Under the old system, as in most western universities, professors and lecturers stayed permanently in one department whether or not their qualifications and expertise were appropriate to the needs of that department and its students.

As a result many teachers were idle for long periods or found themselves teaching courses and subjects for which they were unsuited, despite the fact that their expertise may have been desperately needed by another department.

Thus, while most universities possessed the necessary staff to meet the needs of all departments and students the rigidity of the system simply did not allow for their appropriate and efficient deployment.

Under the new scheme, university staff will have a contract to teach or engage in research for one year. At Nanjing University, 13 per cent of the chemistry department's teaching staff immediately transferred to other departments or universities when the new reform was introduced.

The reform seems to have proved highly successful in terms of increasing teaching efficiency, motivating teaching and departmental staff. It has also won the support of both teachers and students.

One report said that under the new system teachers have found they have more freedom and opportunities to pursue their specialties and that it has encouraged them to give their best. The best teachers are competing for jobs in the best departments and vice versa.

Student enrolments rise to a record 1.16 million

China's universities and colleges will enrol a record 1.16 million students this year, Huang Xinhai, the vice-minister of education, has announced.

Speaking at a national education conference in Nanjing, southern China, Mr Huang said that university places would reach 565,000 this year, which represents an increase of 18.5 per cent on last year's figures. The number of students in adult, higher education by correspondence, television and evening classes will also increase to an estimated 600,000.

Mr Huang assured the conference that the higher enrolment figures would not lead to any lowering of academic or living conditions for students. He guaranteed that academic standards would be maintained and that universities would strive to provide the best living and studying conditions possible.

As part of the new plan, which was devised in consultation with over 900 higher education institutions, 33,000 (5.9 per cent) students will be enrolled directly from business and industry. This figure will be permitted to rise provided state enrolment quotas are achieved.

Under the scheme, universities and colleges will agree to train staff to a

recognized standard for a set fee. Many such schemes have been operating since 1983 and have met with the approval of both employers and universities.

At Zhejiang University, near Shanghai, about a sixth of its students, will enrol this year from both industry and government departments. The university also has a five million yuan contract with the China Petrochemical Corporation to train its employees over the next 20 years.

Wuhan University has run courses since 1983 in journalism, international finance and librarianship, and clients include the Bank of China, the ministry of radio and television and the national Xinhua Bookstore.

It was agreed at the conference that the scheme had been a success so far and had benefited the economy. Also under consideration were plans to expand the scope of enrolment and make arrangements for admitting outstanding middle school students to universities.

It was also announced that places in technical, agricultural and vocational schools will rise by 18.3 per cent this year. These will admit about 1.75 million students from the junior middle schools.

Leading Polish historian is dismissed

Dr Bronislaw Geremek, a leading Polish historian, who is a Catholic and a former member of Solidarity's panel of intellectual advisers has been dismissed from his job at the Institute of History of the Polish Academy of Sciences, which he had held for more than 30 years.

Commenting on the event, Jerzy Urban, the government press spokesman, made it clear that people with supposed political leanings could no longer feel assured of employment in the academy's network of institutes.

This is a tacit policy reversal. Since Poland kept the academy and higher education systems separate, scholars whose loyalty is therefore doubted, and who are therefore barred from university teaching, have frequently been able to find a niche.

After the university purges of March 1982 the academy institutes became a haven for a considerable number of

scholars who had lost their university posts.

The academy of sciences holds a somewhat equivocal position with respect to the authorities. On the one hand, many leading members are tacitly opposed to the regime and in the late 1970s two leading academicians, Dr Edward Lipinski, an economist, and Dr Jan Klekowski, a biologist, were members of the unofficial workers' defence committee which served as a focus for human rights and dissident activity.

On the other hand, the academy's secretary of the academy is responsible, not to his fellow academicians but directly to the prime minister, and thus serves as an instrument of government policy.

Legislation drafted during the Solidarity period planned to change the status of the academy secretary so that he would be responsible to the

overseas news

Another sign of the times

The computer is moving into algebra. This autumn, 600 sophomores at Cornell University, New York, will become the first in America to use computers to solve any algebra or calculus assignments in seconds.

Professor Richard Rand, who is coordinating Cornell's pioneering programme, said: "Computer algebra is destined to play a major role in engineering, but it is virtually absent from undergraduate education. Computer algebra will become as common to engineering students as the slide rule once was."

The students will still have to go through the arduous process of learning the fundamentals of algebra and calculus. But the computers will help them to gain a deeper understanding of symbolic mathematics and allow

them to work with problems more difficult than those in their textbooks. It will also expose them to a technology only now being widely introduced into industry.

Symbolic mathematics is useful to engineers because it provides exact answers. Numerical mathematics often provides only approximate answers because some numbers are rounded off during calculation.

In the computer-based portion of their courses, sophomores will work with problems so difficult that they were previously reserved for graduate students. "The computers will produce graphs to help them understand the relationships represented by symbolic equations. At the graduate level, student research will explore more advanced theories."

Norway plans big research expansion

from Donald Fields

HELSEINKI

Norway's Conservative-led government has proposed a vigorous expansion in the country's research and development efforts in the run-up to the general election.

The share of gross domestic product devoted to this end is likely to be hoisted towards the figure of 2.5 per cent set in neighbouring Sweden, the traditional pacemaker for Scandinavia.

Norway's annual expenditure on research and experimental development has grown in the last five years from about 4.2 billion to 6.5 billion kroner (about £410 million to £630 million). As a proportion of the GDP, the rise is from 1.2 to around 1.5 per cent, which compares with the gener-

ous 1.5 per cent Norway spends on assisting developing countries.

A tentative link has been drawn between the expansion of both foreign aid and research allocations in a government White Paper submitted to the Storting (parliament). The survey suggests five main growth sectors for research: information technology, biotechnology, petroleum and gas, management and culture.

The government warns that if the 4.1 million Norwegian population does not make rapid strides in data processing, electronics and telecommunications, it could lose out in international competition or become dependent on other countries for some vital services.

But large profits are to be obtained in almost every field from applying information technology.

The report notes an "explosion" in studies of molecular biology based on

biochemistry and genetics, over the last 30 years. Biotechnology holds good prospects for Norway, which should ensure that its universities are staffed by qualified personnel and resources are channelled into cultivation of flora and fauna in the oceans.

Norway is producing about eight times as much crude oil and natural gas as it consumes and pumping about 1.2 billion kroner (£115 million) a year into energy research. For the long term, the government speaks of raising levels of competence, investing in an advanced industrial infrastructure and evaluating the impact of oil and gas on the economic and social structure.

On management research, the government says there are deficiencies in public planning and administration. It believes the spread of new technologies could stimulate a more prudent use of resources and better services.

You pays your money...

It pays to belong to a union if you teach at an American university. A new study by the College and University Personnel Association reveals that academics in all but four disciplines - agriculture, architecture and environmental design, business management, and engineering - earn substantially more if they work on a campus with collective bargaining.

The figures are based on the salaries of 60,831 academics at 272 institutions belonging to the American Association of State Colleges and Universities. They show that unionized lecturers earned an average \$37,043 a year, compared with \$34,964 for those who did not enjoy collective bargaining. For associate lecturers, the figures were \$30,251 and \$28,820 respectively.

But the teaching unions still have a long way to go. In the private university sector their influence is minimal and only one out of three public institutions recognizes collective bargaining.

The study shows that an even better way to get ahead is to choose a discipline in which universities must compete for talent with private industry. Newly-hired assistant lecturers in such disciplines are now earning 25 per cent more than the average for all disciplines combined.



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overseas news

India puts its faith in the miraculous medium of television

The levitator goes through his act below the walls of the Red Fort for the twenty-third time that day. Even at 40°C, even the most glib sightseers are not taken in for long, but the more serious sides of the Indian miracle are less easy to see through, and the impressions created by a mere six weeks may be an illusion no less artificial.

India assaults all the senses and all the sensibilities. The gulf between rich and poor, educated and illiterate, overweight and hungry, continually demands your attention. The most modern technologies coexist with the most primitive. India is planning for indigenous video-cassette recorder production, yet most of its villages will depend on the bullock-cart until the next century. The smart restaurants have hot-air hand driers (made in India) while parts of the country do not have enough water for washing.

A woman has been prime minister, but for the majority of women life after marriage is one of subjugation to the husband's and her family's wishes. On the domestic scale a man travelling on a train will wake his wife up to pour him a glass of water, rather than pour it himself. More shockingly the incidence of bride-burning is increasing.

I spent some time in a village where most people still work the land - not their land, but the landlord's - and if everyone worked hard there would be enough to meet his demands and feed the family. It is a relatively prosperous village, with fertile soil and plenty of water, no one will starve, but few will be well-nourished. Rice and dahl will fill the belly, but the eggs and milk which would build the body are sold for cash in the nearest town.

An Englishwoman has started a school and parents who are themselves illiterate jump at the opportunity for "English-medium" education for their children. They have little faith in the state school, and with some reason, for teachers are reluctant to forsake the cinemas to come out to such a village, and those that do expend as much energy on private tutorials for cash, as on the lessons they are employed to give. The same

parents will keep their children out of school if there is work to be done in the fields, and show little interest in learning more themselves. Several of the girls will be married before they can take the school-leaving certificate.

There are transistor radios in the wealthier homes, but no one yet has a television. Recently film shows in the temple showing the state's chief minister (a former film star) in some of his more god-like roles have been a huge success. The organizers do nothing to dispel the idea that attendance is a politico-religious duty. In the world's largest democracy, where bribery, bullying and ballot-rigging are widespread and well-documented, votes are cast - and why not? - so as to bring maximum benefit to oneself.

None the less it is still possible to be optimistic, as irrigation schemes are extended, agricultural techniques are improved and literacy spreads. Optimism is more difficult in the city. To be sure the outward signs of wealth, the cars, the ice cream parlours and the air-conditioned hotels, are there, but they coexist with such abject poverty and squalor that the senses become numbed. For the children of the wealthy there are the public schools on the English model, with the virtual guarantee of progression to a degree (perhaps in a British or American university) and a good job. For the poor, however, there is only the street and a life of begging or searching around the rubbish heaps.

Against this background Indian education seems to this casual observer to be too much concerned with form and too little with content. Rote learning and rigorous adherence to syllabuses are the norm. Every town has its cluster of "college bookshops" where the fastest sellers are books of model answers, practice papers, easy paths to success in exams, at any level. Schoolchildren are taken round galleries and museums at trotting pace; their parents are whizzed round historic forts and temples, they ask no questions. The subject matter of a degree becomes unimportant: its purpose is to turn the key to



employment, and it has become a requirement for the most mundane clerical jobs. "Qualifications" is not confined to India - the British Civil Service has its graduate clerical assistants - but it does seem to be more firmly entrenched here. The government is aware of the problem, and is committed to "defining" degrees and jobs. Hand in hand with this is an effort to popularize vocational education and to establish certification in specific trades as a route to employment.

The Government is also showing considerable interest in using television to improve its education service. There are plans for a nationwide "Open University" and already the communications satellite INSAT-1B is being used for

educational broadcasts one hour a day, five days a week. The decision was taken to start transmitting without waiting for a coherent schedule of programmes to be prepared, and what has happened so far is a hotch-potch of home-produced and imported products, including a number of Open University programmes, on a wide range of subjects. The intention of the broadcasts is ostensibly to complement and enrich college and university courses, and funds have been made available to colleges to purchase television sets.

But some of those involved recognize the difficulty of incorporating the broadcasts - which go out from 12.45pm to 1.45pm - into a degree course, even if lecturer resistance could be overcome, and see far greater potential in the "spillover" audiences, who may be familiar with television at lunchtime and whom it has become possible to reach directly for the first time. The coordinator of the Educational Media Research Centre in Hyderabad, one of four polytechnics, personified by Middlesex, would be satisfied to remain within the public sector adding the title of university; and a larger group of colleges and institutes of higher education is actively lobbying for designation as polytechnics.

In total, no more than a dozen institutions are seriously involved in discussions aimed at changing names, but the situation is being observed eagerly in many more. And the whole issue is about to surface more publicly within the National Advisory Body, where there is serious interest in all three groups, although understandingly little enthusiasm for an exodus across the binary line.

It is the prospect of institutions trying again to escape local authority control and break into the more generously funded university sector which arouses most opposition to all the polytechnics' plans. There is a suspicion among some of the leading local authority members that this is the real aim of those whose stated aim is to change titles as well as those who openly seek full university status.

Richard Yelland

The author is spending 1985 travelling the world on unpaid leave from the Department of Education and Science.

John O'Leary looks at the reasons behind the current scramble to change status

The game of the name



Memories of the clash between central and local government for control of the polytechnics and larger colleges are still fresh.

However, others, including Mr Christopher Ball, chairman of the NAB board, draw a careful distinction between the different aspirations of the polytechnics. Mr Ball has given open support to the "Middlesex line" on the strict condition that it is not a short-cut to loosening local ties or abandoning part-time and sub-degree work. His influential study group is likely to return to the subject later this month, when it would also discuss the ambitions of the colleges.

Their case (or, more accurately, cases) are more pressing in that some have made formal claims, backed by their local authorities, for polytechnic status. The Department of Education and Science has passed on the case made by Humber College of Higher Education to the NAB, and will refer those from Ealing College and the Dorset Institute in due course.

But the outcome of these deliberations is hardly more predictable. Although the change from college to polytechnic might have less far-reaching financial consequences than granting university status, there is a reluctance in some quarters to upgrade institutions in advance of a period of uncertain student demand.

While the NAB is in the process of reconsidering its funding system, which presently favours the polytechnics, funding implications would have to be taken into consideration.

At first sight, it seems a classic out-break of social climbing in the status-conscious world of higher education. Colleges are busy scrambling to become polytechnics, while several of the polytechnics are just as intent on becoming universities. It looks like academic drift writ large.

There is nothing new about some of the larger colleges of higher education pressing for polytechnic status. Three of the six institutions which have given notice of formal moves in that direction were involved in a rather less concerted attempt four years ago.

At the time, there was little enthusiasm among ministers for the idea of more polytechnics, though it was recognized that some had at least an arguable case.

Now the climate appears to have altered sufficiently for there to be some cause for optimism in the ranks of the six colleges and institutes which have formed a new pressure group.

The colleges involved this time are: ● Bolton Institute of Higher Education, which has the technological bias, more akin to the polytechnics than other colleges and serves a large conurbation. Although not among the largest of the colleges, it may grow through a merger with De La

● College of Higher Education. ● Chelmer Institute of Higher Education. The smallest of the six and less technologically-based, it has the advantage of serving the under-provided East Anglian region, which has no polytechnic and by far the lowest participation rate in the country. However, being based in Chelmsford, it remains close to the North East London Polytechnic and is likely to hide its time to see how the other submissions progress.

● Derbyshire College of Higher Education. A merger of Derby Lonsdale and Matlock colleges, which has the administrative complication of being a "hybrid", jointly funded by Derbyshire County Council and the Church of England. Derby itself claims to be the centre of the largest conurbation in England without a polytechnic.

● Dorset Institute of Higher Education, which also has a strong regional case, there being no major college or polytechnic in Dorset or Wiltshire. It also serves a large conurbation in Bournemouth and Poole and, having shed its Weymouth site, is developing a modern campus which is being built up by the county with the assistance of the NAB.

● Ealing College of Higher Education, a disappointed candidate for polytechnic status originally and a leading candidate ever since. It may suffer for the relatively high level of provision in London but will stress the quality of its courses, especially in languages and business projects, as well as its high concentration of

degree and postgraduate work. ● Humber College of Higher Education (formerly Hull). Generally considered the leading contender for polytechnic status because of its size, range of provision and regional case. Although it has a university as its nearest neighbour, there is no polytechnic in the area and the college is the nearest to the other polytechnics in terms of student numbers and academic profile. Like Ealing, it was unfortunate to be omitted from the original list of polytechnics.

Regional considerations are likely to weigh heavily with both the NAB and the DES, but current concerns about the size of institutions may prove an insurmountable obstacle for most of the colleges. So far, Humber, Dorset, Dorset and Ealing have received enthusiastic backing from their local authorities and have made formal submissions.

Mr Neil Merritt, Ealing's director, explained the need for a change of name: "There is absolutely no doubt that the perceptions of employers, particularly with respect to sandwich placements and negotiating for research and consultancy contracts, place us at a severe disadvantage. We also have a well-known difficulty in dealing with research bodies."

Portsmouth, like Plymouth, was aggrieved at not being offered a university two decades ago and it is the city and the county almost as much as the polytechnic which is anxious for a change of status. Plymouth is another polytechnic which has had formal discussions on a name change, while Leicester has the support of its governors in campaigning for a Royal Charter.

At Leicester the pressure for corporate status and a charter to enable the polytechnic to award its own degrees predates the current interest in titles. The governors are awaiting the Government's response to the Lindop Report before deciding their next move. A decision on pursuing a change of title will be made then.

Plymouth's case has reached the county council and will be the subject of further talks when political control has been clarified in Devon. Dr Michael Robbins, the polytechnic director, said: "There is a very strong feeling that the title 'university' would be an improvement. It disgusts me to say so because I think we have carried forward the aims and objectives of the 1966 White Paper more than most, but it seems that the city and the polytechnic would benefit."

to satisfy a number of criteria for designation. These have yet to be debated but could be expected to include size, volume of advanced work, quality of provision and regional needs.

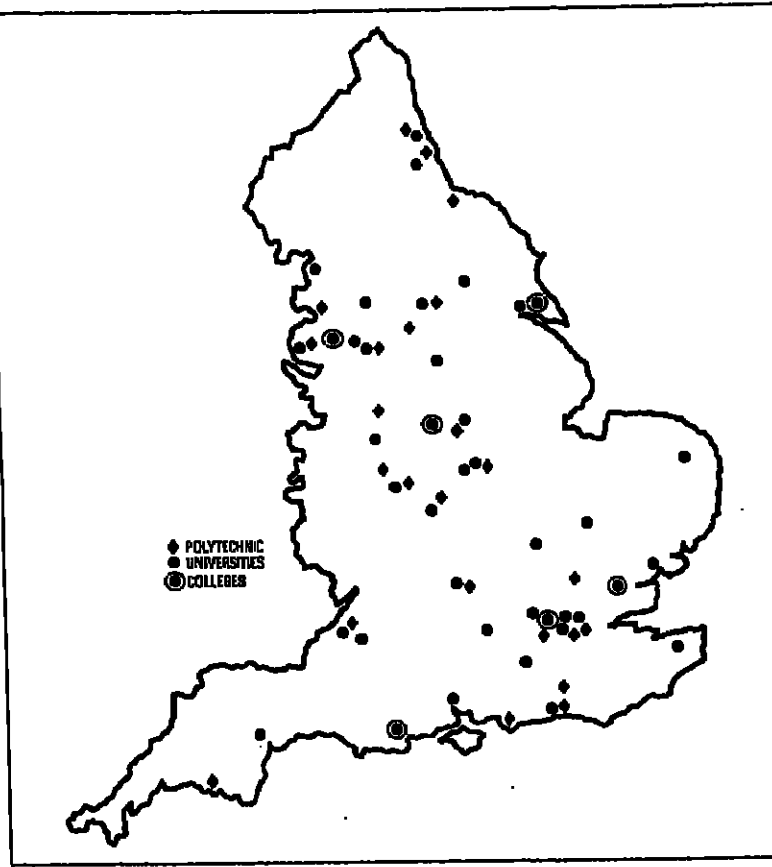
Of the six colleges and institutes which have signalled their intention to pursue polytechnic status, some will stress the quality and range of their provision, others their regional case for designation. But all will claim that, although none is as large as the smallest polytechnic, the six are more like the polytechnics than the average college of higher education.

The DES will wait for NAB advice before making final judgements on the status of the polytechnics or the colleges, although the issues are likely to be a passing mention in the Green Paper on higher education. There is a natural reluctance to redraw the map of higher education without being convinced of the benefits for the country, as distinct from the polytechnics alone.

Likewise, where the colleges are concerned, the DES is afraid of opening the floodgates, the more so when the NAB opened up the prospect of up to 50 polytechnics. That reference may have been intended to leave the question as open as possible, rather than to be taken literally, but it did encourage fears that it would be difficult to draw a new line when so many colleges and institutes are of similar size.

Some of the colleges are hoping to receive a response to their submissions before the end of the year, but the debate may drag on a good deal longer. There may be a move within the NAB to put off final decisions while the shape of the public sector emerges from the 1987/88 national plan. A new funding system which admitted the leading colleges to the polytechnics' club would make decisions on status less urgent.

Keeping up the pressure second time round



	1	2	3	4	5	6	1
	No. of students on first and higher degree courses	No. of students on higher degree courses	No. of students on post-graduate courses	Total no. of advanced students	Total no. of students (advanced and non-advanced)	Col 1 as a percentage of col 5	
Teeside Poly	2,449	130	184	4,812	5,088	46	
Roehampton	2,385	7	287	2,807	3,044	78	
Humber College	1,897	27	108	4,097	5,830	35	
Ealing CHE	1,822	66	368	3,585	5,836	32	
Ryton and York St. John C	1,358	16	70	2,020	2,061	65	
Edge Hill CHE	1,278	64	235	2,178	2,251	57	
Crooks and Ainger CHE	1,174	—	42	3,073	3,448	34	
Dorset IHE	1,089	—	135	1,485	1,780	62	
Liverpool IHE	1,073	19	29	1,498	1,498	72	
King Alfred's C	1,065	38	60	1,231	1,313	61	
Worcester CHE	1,087	52	69	1,247	1,887	57	
Bath CHE	1,057	52	69	1,387	1,388	76	
Bulmer College CHE	1,043	23	58	1,185	1,197	87	
St Mary's Twickenham	1,009	—	34	2,515	6,214	16	
Name College	982	6	118	2,434	2,972	33	
West London IHE	973	—	45	1,342	1,388	70	
West Sussex IHE	960	6	148	1,414	1,878	19	
Derbyshire CHE	958	13	54	1,146	2,340	41	
St Paul and St Mary C	928	—	43	976	1,353	69	
Trinity and All Saints C	915	—	19	1,185	1,245	73	
Chelmer College	913	19	38	1,923	6,168	15	
Cambridge College GAT	848	33	220	3,315	3,524	24	
Bolton IHE	815	31	57	874	874	84	
West Midlands CHE	806	1	66	3,067	4,832	17	
Chester IHE							

Teeside, the smallest of the polytechnics, is given here as an example for comparison.

Source: Lindop Report, figures for 1983

Full-time and sandwich first year students, 1985/86 (excluding teacher training) by region and type of college	Polytechnic	Other	Voluntary	All colleges
Region	5,080	973	416	6,053
North	5,798	2,173	416	8,348
Yorkshire and Humber	7,837	2,981	452	11,350
North West	6,814	2,977	78	7,869
West Midlands	4,864	1,605	—	6,470
East Midlands	2,168	—	—	2,168
East Anglia	15,940	7,081	806	23,807
London and South East	3,843	2,293	192	6,328
South	4,104	2,586	238	2,868
South West				
ENGLAND	54,377	22,782	2,180	79,339

A question of the right impression

giving in to prejudice but we have been in business for 17 years now and we appear to be making no impression on the public.

"Of course you won't solve every problem by making no impression on the public. It is a question of doing just what you can. In the long term, gaining a fair share of resources.

The Government's decision to exclude the polytechnics from consideration for allocations from the £43 million switch initiative has underlined the case made by Dr Rickett and his supporters. But the issue is a highly political one and only for local authority representatives but in the unions as well.

It is further complicated by the ambitions of Portsmouth Polytechnic in particular to achieve conventional university status. As one director admitted, few if any polytechnics would turn down an offer of full university status, given the much more generous funding levels they enjoy.

but there is little prospect of straightforward transfers across the binary line at present.

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East German talent contest

from Barbara von Ow

MUNICH

East Germany is facing up to serious flaws in its higher education system and is looking for ways of promoting better technical achievements at its universities.

In a programme designed to ensure the competitiveness of East German science and technology, the regime is seeking to improve the quality of student performance by expanding practical training and promoting individual talent.

Concern about the standard of academic performance in the GDR has been voiced openly in recent months in the official monthly *Das Hochschulwesen* issued by the ministry of higher education.

According to Karl-Heinz Zieris, of the Central Institute of Higher Education in East Berlin, experts estimated that some 10-15 per cent of young academics had the potential of becoming top scientists. While it was not known how many realized this potential, it was certainly less than that figure, he noted.

As a rule there is a lack of internationally-recognized top scientific achievements, complained another member of the Central Institute, calling on young scientists to become more daring in their research.

How justified the authorities' concern may be is revealed by a study on East German higher education submitted by two political scientists at West Berlin University. The report, *Between Permanent Supervision and Gentle Correction*, presents a critical picture of the situation of East German students since the eight-party congress in 1971.

Personal initiative, independent judgement and ideas were virtually non-existent in the average East German student, according to the authors who recorded a "trend towards mediocrity and indolence" among the 130,000 students registered at the

GDR's 71 universities.

Instead of contributing their own ideas, students generally hoped that the collective would come up with something at the last minute, they noted, quoting an official East German report: "As a result of this 'methodical weakness', which focused on groups instead of individual achievements, in 1982 less than 70 per cent of the 632 undergraduates completed their doctoral thesis on time."

Although the East German constitution theoretically gave every citizen the right to apply for higher education, the distribution of students was strictly controlled by the Communist Party, the study noted. While the authorities claimed that more than half the students were working class, this was misleading as even army officers and leading industrial functionaries were automatically counted among them.

In addition, those who were admitted to university were not always allowed to study what they wanted. As in West Germany, medicine, psychology, pharmacy and biology were the most sought after subjects.

The study quoted East German higher education minister Hans-Joachim Bohme as saying that in 1982/83 only three quarters of all applicants had been admitted to the subject of their choice. Moreover, in 1983 the minister had admitted for the first time that for 5,847 applicants only 2,000 university places had been available.

Those who made it to university had a privileged position marked above everything else, by security. Student life was highly regimented, with a mandatory 27 hours of classes per week. Throughout the degree course, which was generally limited to between four and six years, courses on Marxism-Leninism, Russian and another foreign language, sport and military training were also obligatory.

Every student received a basic scholarship which was increased if they pledged to do longer military service, to work for three years as a skilled worker or have children.

Good academic achievements and social activities can also earn students a special scholarship. However, all undertake a minimum of social activities, that is four weeks of voluntary work paid for on construction sites or the harvest.

Most GDR students live in students' hostels. The planned expansion of these appeared to indicate that strict regulations such as noise and dress regulation were generally accepted, the authors noted. More active and ambitious students, however, tried to find accommodation elsewhere.

The constitution ensured every graduate the right to a job after university. Working contracts, usually signed before leaving university, could only be cancelled at the end of three years. However, most graduates wanted to change jobs at the end of their second year, the report found.

As a result of their passive student years, most young East Germans were not seeking responsible and demanding jobs but secure positions as specialists instead.

The lack of travelling opportunities and the structure of communist society itself were the main reasons for the lack of top academic achievements at East German universities, the authors said. An older generation of scientific pioneers with international experience and new ideas was gradually being replaced by a new generation of young scientists who had never left the GDR and lived in a closed world defined by hierarchy, party privileges and power struggles.

The authorities appear alarmed by this development and are determined to promote individual talent more efficiently at East German schools and universities.

Selective strike hits universities

from Donald Fields

HELSINKI

A selective strike of civil servants locked in a pay dispute with the Social Democratic government has served to highlight discontent with academic pay scales in Sweden. Among the 20,000 strikers who paralysed much of the country's everyday life were 1,700 university teachers and administrators.

The strikers belong to a largely white collar union called TCO-S. Most university staff, however, are covered by the professional federation called Saco/SR, which is launching a campaign in all Swedish universities aimed at familiarizing students with the problems of their mentors.

In a protest letter to two government ministers last month, Saco/SR claimed that starting salaries for university professors - the equivalent of £14,500 a year - were totally inadequate. Referring especially to physicians and researchers, it contended that professors could earn two or three times more in private business.

Saco/SR says that if academics do not receive substantial salary increases in 1986 it will resort to industrial action.

Facing a general election, the government has embarked on an anti-inflationary strategy that has yielded mixed results so far. Instead of the 3.1 per cent compensation to which the TCO-S fell entitled immediately, it offered 2 per cent payable from the turn of the year. As the strike started, it threatened to lock out 100,000 other TCO-S members.

While detailing the effect of spending cuts on higher education the campaign also stresses the contribution that universities make to society. University teaching and research, say the professors, are the key to Sweden's progress.

"During recent years the government seems to have forgotten the extent of the universities' contribution to Sweden's progress," stated Ma

Animal Lib raiders wreck lab

from William Norris

WASHINGTON

In the biggest raid on university research labs ever undertaken by an animal rights group, 467 laboratory animals have been taken from the Riverside life sciences building of the University of California.

Responsibility for the raid, which resulted in damage estimated at hundreds of thousands of dollars, has been claimed by the Animal Liberation Front.

Many of the cages were destroyed, computers and other research equipment were thrown to the floor, slogans were painted on the walls and more than two dozen laboratories and offices were ransacked.

The stolen animals included 36 deer mice, which represented 15 years' work on developing a specific strain with properties useful to scientists. There were also 56 rats, 43 rabbits, 11 pigeons, 21 cats, nine opossums and a monkey.

People for the Ethical Treatment of Animals, a group speaking on behalf of the ALF, said later that the animals had been freed by 16 members because they were being mistreated in isolation and slight deprivation experiments. They said the animals were kept in "safe" homes.

Jack Chappell, a university official, said that the animals had been mistreated. The cats, he said, had had one eye sewn shut in an eye physiology experiment which would have ended in a few days when researchers planned to remove the sutures. He also denied allegations that the pigeons had been starved.

The ALF was the organization responsible for last year's burglary at the University of Pennsylvania in which videotapes of head injury experiments on primates were stolen.

That incident led to the involvement of the University of Glasgow, where it was being collaborating on the research, when an edited version of the tapes was revealed by the PETV. The tapes have recently been turned over to the US Department of Agriculture, which has agreed to review them.

Meanwhile a committee of the National Academy of Sciences has recommended that researchers should consider using lower forms of life in their experiments, rather than trying to achieve, "There are those who say we are

A snatch of Treasury folklore to begin. In the late 1970s the then Chancellor of the Exchequer, Mr Denis Healey, queried some results from the Treasury computer model of how the British economy works, and when his civil servants told him they were right he queried the model as well.

"It's got 700 equations, Chancellor," the civil servants warned. "Are you suggesting I won't understand it?" retorted Mr Healey. A day was set aside for examining the model. After eight hours, according to Treasury mandarins who still tell the tale, it was partly changed.

So when the Treasury academic panel was established in 1976, although Denis Healey probably had nothing to do with it, he was part of a climate of opinion that the model and Treasury economists could use a little stimulation from outside.

The panel was set up as an advisory council of 12 academic economists with an independent chairman, to monitor the Treasury's research programme and report to the Government's chief economic adviser, a political appointment, currently filled by former head of the London Business School and a former panel member in his own right, Sir Terence Burns.

Its members are a mixture of macro-economists and econometricians. They meet six to ten times a year, for a three-hour afternoon session (for which they are paid £75 each a time) where they discuss two papers, usually from within the Treasury but sometimes from outside. Other academic economists are invited, and of course the Treasury's own economists who tend, according to one of them, to say rather less than the academics and be rather overawed by the whole thing.

The panel membership has changed very little in its nine years; seven of the present 12 have been there from the start. Membership is by informal invitation, through the academic economists' old boy network.

The Treasury says it wants a spectrum of political and economic allegiance, though favouring neoclassical economists who believe in market

Supplying a demand

Karen Gold reports on the Treasury academic panel

The members of the Treasury academic panel are:

Professor Michael Wickens, Southampton University;
Professor Michael Artis, Manchester University;
Dr David Begg, Oxford University;
Professor David Currie, Queen Mary College, London University;
Mr John Flemming, Bank of England;

Professor David Hendry, Oxford University;
Mr Brian Henry, National Institute of Economic and Social Research;
Dr Sean Holly, London Business School;
Professor John Hutton, York University;
Professor Marcus Miller, Warwick University;
Professor Stephen Nickell, Oxford University;
Professor Kenneth Wallis, Warwick University.

forces, according to a senior Treasury planner. Professor Patrick Minford, the Liverpool University monetarist, was on the panel but resigned through pressure of work. But there is no representative of anti-market schools such as Cambridge: they comprise only 5 to 10 per cent of the country's economists and are not distinguished in empirical work, according to the same Treasury sources.

The papers to be discussed are picked on merit, according to the Treasury. The agenda for the year is set by the chief economic adviser in consultation with the panel chairman. Papers fall into two groups. Some look at how effectively the whole model works in simulating the processes of the British economy. (What is happening in inflation, employment, unemployment, economic growth, the balance of payments and so on.)

The others look at particular functions within the model: whether new economic research changes the understood relationships expressed mathematically in the model between, for example, wages and inflation, or whether there are discoveries of patterns in the economy which can be fed into the model to make its simulations more like the real thing.

So papers considered by the panel in 1984 included a study of how households allocated their savings between different accounts (national savings

versus building society accounts, for example); patterns of consumer expenditure, something Treasury economists particularly improved in the model; regular three times a year updates of the model, and studies of the labour market and manufacturing industry.

Once the panel has taken a paper to bits, what the Treasury does with it is its own affair. Sometimes it takes the advice immediately; sometimes later – a paper on predicted industrial output was criticized by the panel, then run through the model by still-confident Treasury economists only to find it didn't work – sometimes it ignores it altogether. "Often you end up after a panel meeting with the panel not agreeing among themselves and we not clear what we should do" said a policy adviser.

The members do not sign the Official Secrets Act, but there is a gentlemen's agreement not to discuss panel deliberations outside the Treasury. They do have privileged access to Treasury research – papers for the meetings are sent to them in advance – but since the best Treasury research is published anyway that is not a major incentive.

The real incentive of course is being involved, however tenuously, in the process of government. The panel includes signatories of the letter from 364 economists opposing the govern-

ment's economic policies, and names associated with the new all-party Employment Institute. A majority of the members would disagree with the extent of the Government's concern for controlling inflation, and think it did not give enough emphasis to the effects of unemployment, according to panel chairman Professor Mike Wickens.

But the panel's terms of references are restricted to technical matters and there is little opportunity to express wider views. Some members agree with that. Others do not. Professor Wickens is discreetly pressing not for policy discussions but for the panel to be able to take a broader view than just the particular Treasury paper before them each month. "We would like our brief to be extended to enable us to discuss not what the Government's policy should be, because we recognize that that's a political issue, but what we know of the problems of trying to achieve particular policy targets."

The Treasury is unlikely to agree. Even if civil servants wanted it, ministers would not, it says. In fact long-term policy does dribble through. The panel has in recent years discussed pensions – now in the news with the Fowler review – and the relationship between pay and jobs, whether or not – as ministers assert and the economics profession denies – it exists.

The discussions go in cycles, says

one panel member. As the Budget approaches papers become ever more distant from present policy, but the quieter summer period ideas come up that will feed into policy in the next year or two. Even senior civil servants admit that they are there, though carefully hidden: a Treasury paper discussed in 1984 established a relationship between Mo (the amount of money in general circulation) and the money supply.

An academic paper would have trumpeted the "discovery", say the servants; instead it was included unmarked, so it could be drawn out to back up the Government's policy switching to Mo as a money supply measure.

Even the technical influence can be worth having. According to Terence Burns the two major developments in the Treasury model following regular advice from the panel were:

- Including in it the factor of people's expectations – savings when unemployment increases, for example
- The use of more sophisticated methodology pioneered by Professor David Hendry, panel member now at Oxford University but formerly of the London School of Economics.

"There's no doubt that had he not been a member of the panel but sitting in the LSE writing articles we would not have taken so much interest," said a senior adviser.

That may be good for Professor Hendry, but it is undoubtedly better for the Treasury. And the Treasury knows it. "It means we are part of the community of economists, we are involved in the economic profession in the country," said one of the Treasury's chief policy people. "If the academic panel stopped meeting, in the first few months we wouldn't notice any difference except we wouldn't have to work so hard producing papers all the time."

"But I think deterioration would be in gradually in the quality of our work, and after five years the model would no longer be one of the leading models in the country but one of the worst."



Handover in Algeria: a young boy is rounded up, security forces throw missiles back at the crowds, de Gaulle meets the generals

Adieu to the colonies

Philip Thody describes France's unhappy experience of decolonization

ly, they had won the Crimean and the war of 1914-1918. But on both occasions, it had been a bit of a shambles, and they hadn't been alone. Indeed, it could be argued that they would not have won the first world war if the British and the Americans had not been there to help them. In 1870, the Prussians had beaten them hollow, just as the Germans were to in 1940. The French who had been liberated in 1944 only because the barbarians from across the Channel and the Atlantic had expelled the Germans from their territory were in no mood to start giving away what remained of their overseas empire. The Britain which withdrew so gracefully from India in 1947 had only just experienced its finest hour and taken the additional precaution of not re-lecturing Winston Churchill as prime minister. The France which fought so hard and long between 1946 and 1954 to keep its influence alive in Indochina enjoyed neither of these two advantages.

Like the other conflicts which Kipling called "the savage wars of peace", the Indochinese war of 1946 to 1954 now seems to have been lost from the start. Indochina itself may have been, as the massive Perrin Dictionary of *l'histoire de France* of 1981 puts it, "the symbol of national resurrection, the finest flower of an empire which had contributed to the renewal of the French army and thus participated in the final victory". But it didn't look that way for long. The struggle to retain it as "le fleuron de l'empire" rapidly became known as "la sale guerre" (the dirty war) and ended in a military disaster which was regarded as a national catastrophe. A million more were parachuted into a shallow depression called Dien Bien Phu, some 30 to 40 days march into North Vietnam. The Vietnam, it was confidently asserted, would never be able to bring up enough artillery to make life uncomfortable, and the threat constituted by a strongly fortified position behind their own lines would effectively prevent the rebels from undertaking any serious offensive operations.

It didn't quite work out that way. By April 15, 1954, the soldiers parachuted on the way to total defeat. The Viet-minh brought up artillery on roads judged impassable by French military experts, and by May 7, it was all over. The Americans, discouraged by the British, refused to intervene. The Geneva Conference of July 1954 gave the North to the Communists and put off reunification until after internationally supervised general elections. The French, in trying to establish a country where the invader and the exploited were not only equal but partners in a common enterprise, had failed. The French Republic had been fitted for decision making, the French could have ended the war in Indochina at almost any point between 1946 and 1954. Indochina was a long way off, there were relatively few French settlers, only regular soldiers were involved (40 per cent of

those committed at Dien Bien Phu were from the Foreign Legion), and the American support for French policy was distinctly mitigated until the outbreak of the Korean war in June 1950 enabled the French attempt to hang on to their empire to be presented as part of the crusade against Communism. The Americans weren't too keen on French policy in Algeria either, and the mistrust of "Les Anglo-Saxons" which has always characterized the French right certainly didn't decrease between 1954 and 1962.

To begin with, Algeria was theoretically an integral part of France. The constantly repeated slogan of *l'Algérie Française* meant that there was, constitutionally, no difference between Algeria on the one hand and Normandy, Brittany or L'île de France on the other. It didn't go without saying because everybody kept saying it, and they kept saying it because Algeria had something which Brittany or Normandy didn't have: nine Arab-speaking Moslems to every Christian or secular-minded Frenchman. Neither did Alsace nor the Ile de France have a situation in which one tenth of the population had, roughly speaking, European standards of living, while the other nine tenths endured a characteristically third world poverty. That was the situation in Algeria, and the European Algerians, who had the higher standard of living, saw no reason why they should give it up. After all, many of them had been there for several generations, and they had given Algeria whatever prosperity it now enjoyed.

To the outside observer, few issues of moral dilemmas than the Algerian war. The opponents of the policy of *l'Algérie Française* could underline the hypocrisy of the official position, and journalists in progressively minded publications such as *Le Monde*, *L'Express*, *Témoignage Chrétien*, *France-Observateur* (as it then was), *L'Esprit* and *Les Temps Modernes* did not fail to do so. The idea that Algeria was an integral part of France was ludicrous, they said, when you considered the success with which the local European population has consistently torpedoed every attempt to give the nine million native Arab population any genuine equality with the million or so European settlers, a third of whom were of Spanish, Maltese or Italian extraction.

The immense differences in standard of living between the two communities, they observed, was also reflected in the existence of two electoral colleges, and Raymond Aron, a regular contributor at that time to the highly conservative *Le Figaro*, pointed out the dramatic effect the introduction of a genuinely representative system for Algeria would have on the National Assembly in Paris. There would, he pointed out, immediately be over 150 Algerian members in the *Chambre des Députés*, enough to paralyse any normal parliamentary activity. Jean-Paul Sartre, putting into practice his view that the writer had a duty to take sides on the political issues of his day, published an article in *Les Temps Modernes* pointing out that one of the most fundamental principles of French republicanism, the existence of a secular state, was not observed in Algeria, where the Moslem deity enjoyed privileges which the French authorities hoped would encourage

to support the powers that be.

Neither, in the view of the opponents of *l'Algérie Française*, were the economic differences between the two communities merely the consequence of the coexistence of two civilizations at different stages of development. This was the thesis of the ethnologist Germaine Tillion, whose views were supported by Albert Camus, himself a European Algerian. Both writers maintained that the French had a duty to protect the European population, as well as not to abandon the Algerians after having taken them half way along the road to the modern, industrialized world. Sartre expressed a more characteristically left-wing view point when he maintained that the Europeans were richer than the Algerians for the simple reason that they were exploiting them. In particular, they had appropriated the best lands for themselves, were using them to grow wine which the Moslems didn't drink, and had actually reduced agricultural production in other areas. Moreover, and this was the point which most caught public attention both in France and elsewhere, the half million French soldiers who were having to be kept in Algeria to repress the rebellion which had broken out on November 1, 1954, were making systematic use of torture in order to try to defeat the *Front de Libération National*.

The supporters of *l'Algérie Française* replied that the FLN was equally violent in its methods, that it was supported by an aggressive, Egyptian inspired pan-Arabism, that it exercised terrorism against the Arabs which it claimed to represent, that it was partly Communist inspired, and that it had made clear to the Europeans in Algeria that its victory would give them only one choice: the massacre or the coffin. The *plebs noirs*, as they were called, perhaps because they wore black shoes while the native population were bare-foot, also had the support of the French army, convinced it would win, and determined not to lose yet again. Together, in May 1958, the army and the *plebs noirs* organized the *coup d'état* which brought de Gaulle to power and enabled him to replace the Fourth Republic by the Fifth. And together, between 1958 and 1962, they saw this ageing, Catholic, supposedly right-wing, highly nationalistic professional soldier give Algeria the independence which the left had always argued it should have but had not notably failed to give it.

De Gaulle always believed that providence watched over France, and when you think what could have happened after 1958 if he hadn't been there, it's hard not to agree with him. There were plenty of generals ready to do a Franco and start a civil war if that was the price that had to be paid to keep Algeria French. They had a go in April 1961. De Gaulle had the determination and prestige to defeat them. Nobody else could have done it. The majority of French soldiers in Algeria were, conceivably, turning the corner as possible. In April 1961, when General Challe, Zeller, Jouhaud and Salan, organized their *putsch*, only

their fellow professionals and the paratroopers followed them. Technology had reached the precise point where almost every soldier had a transistor radio set. They listened to what de Gaulle had to say, heard what support he enjoyed in metropolitan France, and refused to obey their officers. From that point, the Algerian war was lost. Independence came in July 1962, and the *plebs noirs* "returned" to the France which most of them had never seen. They found themselves described by one of the great inaccuracies of administrative French as *des rapatriés*.

The vast majority settled quite easily into French society. The economic boom of the 1960s was getting underway, France was still an underpopulated country, and they were a welcome addition to the labour force. Only with the recent success of Jean-Marie Le Pen and the *Front National* has there been any sign of an irredentist political party. The famous *"Je vous ai compris"* whereby de Gaulle replied to the crowds which welcomed him in Algeria in 1958 was the most brilliantly ambiguous statement ever made by any politician. At the time, everyone thought that he meant: "I have understood your desire to keep Algeria French, and I will help you." By 1962, his words had come to mean: "I can see what you want but you can't have it." Nowadays, it is obvious he meant: "I know that what you really want is a European standard of living, and will make sure you have it – in France."

But de Gaulle also ought to have said thank you. The Algerian war enabled him to come back to power and it gave France the most stable and efficient democratic constitution it has ever had, one whose virtues became even more evident in 1981. For it then gave François Mitterrand the most secure power base ever enjoyed by a French left-wing politician. For France, decolonization finally proved, albeit in a rather Panglossian way, that everything finally worked out for the best. Admittedly, the critically minded English observer can use the events of Indochina and Algeria to support the view that the French are almost as bad at politics as the English are at industrial relations. He can point to the million or so deaths caused by the Algerian war, and the 92,000 inflicted on the French in Indochina (the civilian deaths on the Vietnamese side are not available) and argue how easily all the horrors could have been avoided if the French had shown the same readiness to withdraw from their empire as the British did to leave India, or which had led to the Louisiana Purchase.

In reply, the French can say that they withdrew just as cleverly from black Africa as did the British, and that anyone can give up an empire if they don't have to cope with a large settler population. They can point to the million or so deaths which accompanied Partition after the British withdrew from India in 1947, and make remarks about how dangerous it can be to give up your responsibility too quickly. And if anyone is rash enough to suggest that the French failure to decolonize in the time holds a unique position in the annals of historical wickedness, there is a reply not only in the enthusiasm of the Boer People to leave South Vietnam after the Communists finally won. There are also figures given by the North Vietnamese on the human cost of the Pol Pot régime: three million.

All for nothing, as well – except for the fact that Algeria has now become a modern country which spends more money on its universities than on defence.

The author is professor of French literature in the University of Leeds.

Peter Aspden talks to Richard Cobb about the bizarre events of his schooldays



An autobiography after the fact

"Never miss a tutorial," says Richard Cobb, not unsurprisingly, to all his students at Oxford: after all, they never know when they might need a cast iron alibi when suspected of being an accomplice to a grim and bloody matricide.

The story which unravels bizarrely in the second part of Cobb's autobiography, *A Classical Education*, is every bit as twisted and remarkable as the first part, *Still Life* was tranquil and evocative.

The earlier volume, dealing with the quiet, refined atmosphere of Tunbridge Wells in the 1920s, earned a rebuke from Auberon Waugh who in his review lamented the fact that "nothing happened". Cobb recalls the review with "negative pleasure", and quietly suggests that the second part may more than make up for the earlier absence of action.

His account of his schooldays at Shrewsbury consists entirely of his unending relationship with Edward, a boring, self-important, and above all "ordinary" character whose only claim to interest was that he murdered his own mother.

With that combination of cruelty and glee so common in childhood, Edward commonly refers to his parents as Moloch and Medea. His stories of their demonic malevolence clearly fascinated Cobb as the two boys embellished their adventures with feverish application.

But the elements of force and innocent fantasy turned to grotesque tragedy as Edward, finally driven beyond tolerance, murders Medea with an axe, gets rid of the bloody corpse and pops into a friend's house to wolf down an enormous breakfast.

Cobb, more used to describing the events of revolutionary France with equal vividness and colour, has clearly

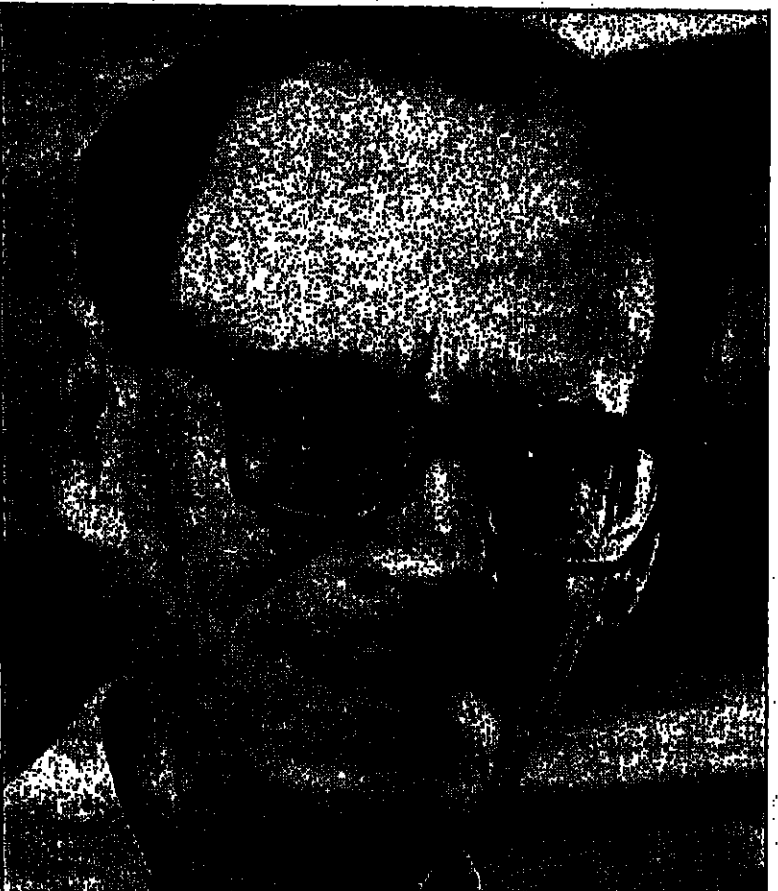
turned over the facts of the case, one of the most notorious in Irish criminal history, in his mind for many years. "I was hoping that Edward would put it all down in writing, it was such a remarkable tale," he says. "I did in fact send him to a publisher's friend, who then wrote back to me to say that he was not capable of writing the story without lapsing into the utmost bombast."

Which led Cobb, former Professor of modern history at Oxford turned autobiographer, to reveal the events through his own eyes – not that he found the process dissimilar from his historical writings. "I have always found it difficult to dissociate myself from history; the two are constantly joining together."

"I have always enjoyed writing, and recounting the events of childhood is very enjoyable, everybody has a book about childhood in them. What is remarkable is how it comes back to you, details such as my mother's dressing table, for example, which were long lost in my memory. Mind you, I suspect I invent some of it as it becomes very difficult to distinguish between fact and invention."

The most interesting facet of Cobb's autobiographical work is the way it changes to accommodate the events described; the differences in style and tempo between the two volumes correspond precisely to the differences between the contemplative reflection of life in Tunbridge Wells and the more detached, almost incredulous account of Edward's demise.

There will not be a third part to follow the first two volumes, says Cobb, because that would just be writing for the sake of it, as anathema to the historian in him as all the trappings of his literary profession world.



Richard Cobb: suspected of being an accomplice

His next book will be a tale of two houses, belonging to his grandfather and sister-in-law, an evocation of two places and all their attendant history, personal relationships and troubles. Perhaps, he muses, there will be a later volume to recount the chapter in his life when he fell in love with a Bulgarian girl – "it was terribly dramatic, being followed about in the snow by men in long leather coats" – but perhaps not.

Cobb's most anxious moments while writing *A Classical Education* came when he sent a copy of the typescript to Edward, with whom he has long lost contact, to ask for his opinions on the work.

"I sent it with some trepidation because I am quite frank in the book about what I thought of him, and was quite amazed when I received a very mild letter back, which just corrected

one or two little details and asked if he could have two free copies. "Three weeks later, however, came another despatch, the tone of which was a little more... legalistic. "He said the book was a character assassination which made him out to be a homosexual, bankrupt, nipsompoop. He must have received advice."

"My main concern was to maintain his anonymity, but that was fruitless to some extent because it was a famous and fairly well-documented case. It was unusual because he was denounced without the body ever being found, and because there had to be a retrial when Elsie broke its links with the Crown."

Cobb himself was something more than a passive observer during the proceedings – not only was he suspected of being an accomplice to the crime (his alibi being that he was

engaged all day in a massive double tutorial), but some time earlier, was accused of libelling Medea in his correspondence with Edward.

In a sequence of events rivaling the murder in absurdity, Cobb was sent to a psychiatrist in Wimpole Street (complete with foreign accent and placebo), and finally cleared of the libel charge – only for Medea to write to the head of every Oxford and Cambridge male college urging them not to accept the boy who had "ruined her son".

Incredibly, he recalls these days with some affection: "I wasn't at 15 or 16, unduly worried about solicitor letters and things like that. The psychiatrist was very nice to me, and the main effect on me of that time was enjoying the unexpected break in London."

Typically, the title of the book reflects Cobb's appreciation of jokes – when he meets Edward years after the murder and he has served his time, his boyhood friend laments the classical education the poor received, which didn't inform them that a blood-curdled son should be washed with cold water so as not to leave any trace of the crime.

Not conspicuous lover of the public school network, Cobb likes to think that Shrewsbury represents a certain tradition of frivolity. Old boys, after all, include Richard Ingam (Private Eye still refers to Cobb as the "Compleat Imbiber") and "that great man Michael Heseltine – I think he's Minister of Defence now".

Cobb still teaches history at Oxford, as a senior research fellow, and gets paid by his college in kind, "a very pleasant arrangement". Irreverence has become an integral part of his reputation, which he enjoys playing up to – a recent Wolfson prize was welcomed because it "looked after the Oxford".

His commitment to readability, as well exemplified by his own work, made his chairmanship of the Booker prize judges panel somewhat controversial when he declared that he had never read a word of Joyce or Proust.

"Of course that was quite untrue. I just felt like throwing a stone out into the audience. But it caused a tremendous upset, people were very outraged." In his words, he wants to repeat, "I don't think *A Classical Education* by Richard Cobb is published by Chatto and Windus, price £9.95."

Keywords: Roger Thompson reassesses Peter Laslett's best-seller *The World We Have Lost*

A calculated look at merry England

I have just finished reading two dissertations on the same general topic. The first, presented in 1951, relied pragmatically on letters, diaries, state papers, court depositions and other literary sources. The second, submitted in 1978, was fundamentally different. Its data base consisted of statistical material extracted from local and testimonial records and presented in graphs, matrices, tables, diagrams and maps. Its style and method were consciously modelled on the social sciences.

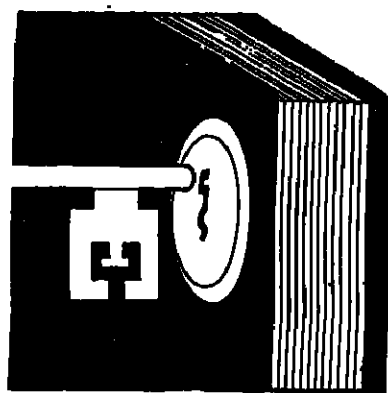
In the 27-year interim, something pretty earthshaking had happened to social history; a new trend had been set. Such radical changes have complex origins, but few would deny that a major catalyst was a book by Peter Laslett, which, with a nice sense of symmetry, appeared at the midpoint between my two theses, 20 years ago.

The World We Have Lost was both a manifesto and a report of work in progress. It dismissed the current *half sociology* in favour of the sophistication of the French *Annales* school. In pursuit of "a really scientific historical demography", historians were summoned to dig neglected gold mines like parish registers, list listings, court records or apprenticeship indentures and refine the ore by new processes. Social scientific methodology would bring exactitude to the study of social structure and enable the historian to reconstitute ordinary families and communities of the pre-industrial past.

Using preliminary findings of the newly-founded Cambridge Group for the History of Population and Social Structure, Laslett debunked popular preconceptions about people in merry England living in extended families, marrying early, staying put in their village and condoning the free and easy sexuality of milkmaids or shepherds and their swains. He poured doubt on the idea of profound social or economic changes underlying the political upheavals of the seventeenth century and found the Marxist conception of class in traditional society anachronistic.

Instead he sketched a patriarchal, caste society burdened by a huge millstone of poor, by natural disasters and by low life expectancy. For most people the scale of living was minute; widespread ill-health; promising circumstances were rare. Promising more data and more revelations soon, Laslett engagingly fleshed out his skeletal statistical tables with vivid examples of peasant behaviour from contemporary observations.

What gave the book its power and challenge was the author's infectious enthusiasm. Here was a middle-aged Cambridge don who had already made his reputation as an authority on Locke and Filmer eagerly beckoning the



general reader and the professional historian to follow him across a 300-year gulf into this absorbing lost world of ordinary people he was intent on exploring.

The World We Have Lost was a best-seller. It was reprinted in 1968; a second edition appeared in 1971, to be reprinted five times before the third edition of 1983. It has sold widely in the United States and has been translated into several languages.

Several of the ideas that Laslett popularized, like geographical mobility or late age of marriage, had been current with these specialists for a decade or more. Similarly the *Annales* school was gaining influence among Anglophone historians at this time and 1965 was the apogee of post-war liberalism. This and a renewed sympathy for Marxist perspectives encouraged socially-aware scholars to explore the past of "the inarticulate", history seen "from the bottom up" or "the underside". If the day of the common man and woman was at long last dawning in Britain and America, it was high time that their long night of waiting be illuminated.

Harold Wilson had much to say in the 1964 election about "the white heat of technology". This was the new age of the computer. Huge masses of data could now be processed; the historian could embark on studies whose scope would have daunted even the Victorians. A scientific investigation of "all the people" in past time was within reach.

The mid-1960s saw the plate-glass universities open their doors. The social sciences were the cult subjects; the cult approach was interdisciplinary. Historians, drawn to the study of ordinary people in the past, yet conceptually ill-equipped to undertake such work, turned to the models already developed by sociologists, anthropologists and econometricians.

Laslett's comparison of life expectancy in Stuart England with that of 1930s India was bound to strike a resonating chord in the 1960s. Would the Journal *Literature and History* be now 10 years old. Coming as it did from a public sector English department, at Thames Polytechnic, and with a then-unfashionable interdisciplinary remit, it helped break more than one mould in literary study. One of the editorial board, VALERIE PITT, looks back over *L & H's* first decade.

It was a shock when they reminded me we ought to be doing something celebratory about *Literature and History*. Ten years - more or less from the glad, confident post-Robbins morning - and worth celebrating if only because it belongs to that history. It still is; it stands in its way against the depressing political attempt to persuade us all that was a bit unfortunate, like a Victorian illegitimate baby left after a night of enjoyable passion.

The dramatic thing about Keith Joseph's speech is that it fosters that sense of shame, the assumption that schools, universities, polytechnics, have entered into a conspiracy against the taxpayer simply to find devices for spending money. "Who," demands that hysterical, clucking crescendo, "is to pay for it?"

The World We Have Lost have been such a trendsetter had it been published a decade earlier?

By the early 1970s its impact and that of the Cambridge Group was high on the historical Richter scale. Everybody seemed to be counting and soon far more than merely counting. Young and not-so-young scholars were applying sophisticated statistical formulae.

They were not just social historians either. Political historians were analysing poll and voting books. The sensational publicity for the Fogel and Engerman study of slavery, *Time on the Cross*, revealed to the wider public just how far the new "science" of "cliometrics" had gone.

Laslett himself pursued a double life. He continued to popularize the new social history through newspaper articles, reviews, lectures, radio, television and conference appearances, while co-authoring or editing scholarly publications on household size and structure (with Karl Oosterveem and Richard M. Smith); along with a string of articles in learned journals.

Other members of the Cambridge Group or its followers published new findings on literacy (Roger Schoffeleers and David Cressy), geographical mobility (Anthony Wrigley, Cressy, Peter Spufford); on family limitation (Wrigley); on micro-studies of communities (Keith Wrightson, David Levine, David Hey, Miranda Chaytor, Allan Macfarlane). In the United States similar studies on early colonial settlements began to appear in the early 1970s.

Few history graduate students in that decade felt fully clad without their electronic calculators. The leading journal of colonial history, *The William and Mary Quarterly*, was deluged with cliometric articles and new publications like *The Journal of Interdisciplinary History* appeared to cater to this new approach.

What has all this exhilarating activity of the past 20 years taught us? Certainly the old picture of merry England has been largely repainted. People, especially young people, moved around a great deal, some over considerable distances; they lived in nucleated households; they married late; they had fewer children than imagined and boarded them out in adolescence; the majority, especially of women, could not sign their own names. Bastardy, promiscuous fornication and fertility seemed to vary in reaction to economic conditions. The cycle of deprivation is detectable in "bastardy-prone" families and in the lower life expectancy of the poor.

In New England chances of survival and longevity seemed to have been dramatically improved, though in Virginia and Maryland immigrants faced heightened risks. Many settlers were less mobile in the new world than they had been in the old. They married somewhat younger and had larger families but in other ways were far more conservative than imagined.

Such findings - and I have only noted the brighter stars in a galaxy - were presented with a dazzling array of figures. Without question, our knowledge of the population and social structure of early modern societies has been enormously broadened and sharpened.

Yet recent commentators have highlighted what "QUOSH" is one practitioner abbreviated Quantitative Or Scientific History, has not taught us. Lawrence Stone has criticized the "thin and watery gruel" of mere statistics. "All the possible statistics about age of marriage, size of family, rates of illegitimacy will not add up to the history of the family," concluded Sir Moses Finley. Daniel Blake Smith pinpointed the central weakness of the new trend: "Demographers cannot unlock the inner life of the family."



Attitudes, relationships, family and community dynamics are doubtfully susceptible to the methods of QUOSH. Historical demographers may quantify how many babies died; they cannot tell us whether parents therefore loved their children less.

Literary sources which cliometricians, sometimes arrogantly, disdain as "unscientific" can give us invaluable illumination on the emotional lives of our ancestors. Historians of early modern mentality refuse to accede to Laslett's contention that "the emotional pattern of that society has vanished for ever".

The vaunted scientific nature of the new social history has also been called into question. Its reliance on modern social scientific models and method may involve serious anachronistic distortions.

Its sources, parish records for instance, have too many gaps and suspicious under-recordings by fallible officials. Family and community reconstruction is bedevilled by technical problems. Some fascinating correlations have been detected, like the stimulus of graphs of bastardy and both premarital fornication and lowered age of marriage. However, Laslett's explanatory "courtship intensity hypothesis" is an educated but unsatisfiable guess. The new history is not an exact science, nor can it ever be.

Furthermore, the trend set by *The World We Have Lost* has been fuelled for three unfortunate side-effects. From early morning to late at night, a free bus service operates between the two Amherst institutions and the other three member colleges - Smith College, nine miles away in Northampton; Mount Holyoke College, about the same distance in the village of South Hadley; and Hampshire College, located between South Hadley and Amherst. UMass excepted, the member colleges are all private institutions, charging fees in the Amherst College range. Two are women's colleges (Smith and Mount Holyoke); the rest are co-ed. (Amherst College ended a 154-year all-male tradition in 1975.) The youngest member, Hampshire, is the "progressive" creation of the 1960s, organized on interdisciplinary lines.

The idea of teaming up from separate bases is particularly American; it is cashed in the US federal system. Americans historically have been ardent affiliates both to offset their inferiority and to bypass state control, as well as simply to get things done. Five colleges can take pleasure in the fact that Walt Whitman celebrated the exchange of diverse gifts as the very source of social union.

Within American higher education, the 1983 Consortium Directory lists over 1,200 colleges and universities that cooperate in more than one course programme - producing 134 consortia ranging from big city alliances of commuter colleges and central universities to small rural federations. The sectarian splintering that created so many college-related colleges across the country led to a compensating drive to affiliate: the colleges wanted to preserve their small and distinctive communities but they needed the resources of a greater whole.

In Iowa and South Dakota, the ten college-linked Colleges of Mid-America have only about 450 faculty and 700 students between them. They are up to 265 miles apart, but they send students to each other on special programmes and they share library resources (a form of cooperation greatly aided by microfilm and computer).

In contrast, California's six Claremont Colleges within walking distance of each other. They have two yet share one library, bookstore, health and counselling service, and other administrative facilities. Openness to each other has each other has kept distinct identities by concentrating on particular disciplines within their own walls.

That I suspect is one reason why some would like to persuade us that the phenomenon is a child of shame, better not born. But it has been, it is vigorous, and it does not take the view of itself. So the champagne might be worth opening after all.

The author is head of the school of humanities at Thames Polytechnic.

The author is reader in American history at the University of East Anglia.

Lessons from the Valley of Cooperation

The University of Massachusetts stretches away from the town of Amherst into the farmland and wooded slopes of the Connecticut River valley. A small city of high-rise blocks and plazas, catering for over 6,000 students, it is a state institution owned by the "Commonwealth" of Massachusetts. The atmosphere of the student centre - a complex of shops, cafeterias, and offices - is that of a well-equipped railway station: thronged, busy and plebeian.

Drive half a mile into Amherst and you are in an up-market college town, with wide avenues, classical New England buildings, and the campus of Amherst College (student population, 1900). Amherst College is an upper-class institution. Although more than a third of its students get financial aid, the full fee for tuition plus "room and board" in 1983/84 was \$11,800. This was nearly double the fee charged by the University of Massachusetts to students who lived out of state, and more than triple the fee to Massachusetts residents. Sociologically, Amherst College is highly selective; among America's liberal arts colleges its academic reputation is second to none. "UMass", by contrast, is not particularly selective, though both institutions have outstanding scholars on their faculties.

In spite of the differences, UMass students can take courses at Amherst College, and vice versa, at no extra charge either to themselves or their institutions. They can do this because both establishments subscribe to Five Colleges Inc., a consortium explicitly created so that its members could share courses, programmes, and libraries. From early morning to late at night, a free bus service operates between the two Amherst institutions and the other three member colleges - Smith College, nine miles away in Northampton; Mount Holyoke College, about the same distance in the village of South Hadley; and Hampshire College, located between South Hadley and Amherst. UMass excepted, the member colleges are all private institutions, charging fees in the Amherst College range. Two are women's colleges (Smith and Mount Holyoke); the rest are co-ed. (Amherst College ended a 154-year all-male tradition in 1975.) The youngest member, Hampshire, is the "progressive" creation of the 1960s, organized on interdisciplinary lines.

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A seminar at Smith College, one of the Five Colleges Inc.



of courses between the women's liberal arts college, Bryn Mawr, and its neighbour, Haverford - a distinguished male college which went co-ed in 1980, to the anger of many at Bryn Mawr - is so established that the two colleges print each other's courses in their catalogues. The departments at each college are also supposed to cooperate with their opposite numbers to avoid duplication in courses and faculty hiring.

In its range of enterprises, Five Colleges Inc. is probably the most developed academic consortium. It has reached this point by a mixture of *ad hoc* growth and blueprint planning. Long before Hampshire was thought of, the four colleges got together to organize adult extension courses, including the country's first radio course in 1922-23. From the 1930s small numbers of students commuted to neighbouring campuses to take courses unavailable at their own colleges, and faculty taught "away" courses too.

Cooperation mushroomed in the 1950s and 1960s. A four-college astronomy department and radio station appeared; a four-college coordinator was appointed; and the *Massachusetts Review* started its distinguished career as a journal of literature and cultural studies. Located at UMass but subsidized by all four colleges, the *Review* helped diminish snobbery at the private colleges towards the university.

In 1959 a four-college planning committee recommended the creation of a fifth college which would take radical approaches to knowledge and teaching. A \$6 million gift from an Amherst College graduate made the college a reality, and Hampshire opened in 1970. It represented a deliberate decision by the older colleges to sponsor educational growth in the area without adding to their own populations and structures.

To be viable Hampshire depended - and still does - on cooperation with the other colleges. For example, Hampshire students have had to go elsewhere for art history, although the college is strong in film and photography; likewise it does do linguistics (reflecting the emphasis on teaching core concepts). Each semester half or more of Hampshire's students take at least one course elsewhere, most often at UMass. At the other private colleges the proportion ranges between a tenth and a quarter.

By contrast, only a tiny percentage of UMass students try their luck elsewhere. This is due partly to the great range of courses offered at the university, and partly to students' fear that they won't do as well at the private colleges. (UMass students normally take five courses a semester, whereas students at the other colleges take four or five.) In absolute numbers, however, the UMass population is so big that more of its students use the five college "interchange" system than any other college except Hampshire.

Five Colleges Inc. is legally a separate entity from its principals. Its board consists of the five college presidents, plus the chancellor (there is another campus at Amherst, and another at UMass, campus at Boston), and the

coordinator, E. Jefferson (Pat) Murphy. From an elegant house in a wooded section of Amherst, Murphy and his small staff control an annual budget of more than \$14 million, not counting such semi-autonomous activities as the radio station and the *Massachusetts Review*.

About a third of the budget comes from government and other outside sources; the rest in equal contributions from the colleges. This means that Hampshire, with the smallest income, pays proportionately the most, but in 1983-84 its contribution to all Five Colleges activities was only 1.3 per cent of its budget. The colleges do not each other for teaching each other's students, and there are no EEC-type squabbles about who should pay less or get more. The biggest budget item is its subsidy to the local bus service, which in turn is free for all passengers, not just students. This subsidy - supplemented by payments from the college student unions, and by state and Federal grants - replaces the subsidies which the local communities used to pay the bus company. The organization also runs its own minibuses on some routes, but its total spending on transport - nearly \$500,000 in 1983/84 - is still less than when it ran a complete service itself.

On the academic side, the consortium supports a variety of programmes, including special lectures, seminars and workshops; the Five College Professorships; and packages of courses which focus on interdisciplinary subjects - from black studies to paleontology.

Again and again faculty at the different colleges told me that they liked the stimulus of students from other campuses in their courses, and that the Five College system promoted contact in the Valley between people in the same field. The Five College system also provides a quasi-common market for extra teaching: when a professor goes on leave, a colleague at one of the other colleges will often pick up some extra money by filling in. It is hard to find anyone in the Five College area who explicitly disapproves of the system.

There are lessons to be learned in Britain from the federalism of the Connecticut Valley. Why cannot a small, innovative university such as Keele operate course interchanges with its large and diverse neighbour, Manchester? Admittedly, such schemes would have to proceed carefully lest Government or the University Grants Committee make them an excuse for cutting "duplication" rather than rewarding enterprises.

In today's political climate, perhaps the best lesson to be learned is at the secondary school level. The Five College system is a rebuke to those heads of neighbouring public schools who pay lip-service to cooperation while doing little to cross class lines by exchanging teachers and students. If it is "not in the culture" to do so, then it is time the culture changed.

The greatest tragedy is the terrible disservice to the student. Sports are depicted as the way to fame and riches. The fact is that only a tiny fraction of those who compete in college sports will make it to the pros, and only a small percentage of those who do

Rupert Wilkinson
The author is reader in American studies at the University of Sussex.

Ernest Boyer



Amateurism, shamateurism of campus athletics scandal

Several weeks ago, a scandal broke at Tulane University in New Orleans. Athletics on that campus were accused of fixing basketball games. Tulane's president acted promptly. Intercollegiate competition in the sport was abolished, and the university trustees supported that bold move.

As in many other American colleges, athletics still dominates campus life. Coaches are folk heroes, earning more than the combined incomes of two or three professors. High school athletes are vigorously recruited and, once enrolled in college, many spend more time in the locker room than at the library. They often fail to complete their academic programmes. Alumni seem more pleased to have an athletic trophy on campus than a Nobel laureate.

Over 50 years ago, the Carnegie Foundation for the Advancement of Teaching prepared a report entitled *American College Athletics*. That report still has a disturbingly familiar ring. "A system of recruiting and subsidizing has grown up, under which boys are offered pecuniary and other inducement to enter a particular college."

"For many games the strict organization and the tendency to commercialize the sport has taken the joy out of the game... the blaze of publicity in which the college athlete lives is a demoralizing influence."

The irony is that what the Carnegie Foundation called, in 1929, "demoralizing influence" looks "like the age of innocence today. Big time athletics in American colleges and universities has become the slave of two powerful and corrupting masters - professional athletics and television."

The scope and power of their influence was recognized as far back as the December 1969 issue of *Sports Illustrated* when William Johnson wrote: "In the past ten years sports in America has come to be the stepchild of television and, in a sense, handmaiden to the vicissitudes of Madison Avenue... the impact of television in these last ten years has produced more revolutionary and irrevocable changes in sports than anything since mankind began to play organized games."

In that same article, the late Bear Bryant, former coach at the University of Alabama, is quoted as saying: "We think TV exposure is so important to our programs and so important to this university that we will schedule ourselves to fit the medium. I'll be in the spotlight if that's what TV wants."

Hovering over the twin industries of professional sports and television is the "industry" of gambling. The goal is to field the teams, keep television ratings high and the gambling coffers full. Some time back, the *Chronicle of Higher Education* had a page one article headlined "Gambling on college games said to be up dramatically". The story estimated that betting on college sports annually has topped \$1 billion.

Today, gambling, television, and professional sports have their own agenda - and it is money. Student athletes are used as raw material for the profit-makers. The nation's game has become "farm clubs" of pro football and basketball. And the situation seems likely to get worse.

The greatest tragedy is the terrible disservice to the student. Sports are depicted as the way to fame and riches. The fact is that only a tiny fraction of those who compete in college sports will make it to the pros, and only a small percentage of those who do

become professional athletes earn the overblown and widely publicized salaries of top stars.

Further, athletes are academically cheated. In 1982, about half of the college seniors who competed in one of America's major basketball conferences graduated. The vast majority of the students who pour all their energies into athletics find themselves consigned to a life of frustration and failure - the result of playing instead of learning.

For black students, who have come to dominate collegiate basketball and football, there is a special poignancy in all this. Often they see their sports as the only way to be successful and enter the mainstream of life. But for most, professional athletics and all it can mean will prove to be illusory.

The 1929 Carnegie report on athletics asked the general question: What should be done? The 1985 version of that agonizing question is: can anything be done?

Recently, the National Collegiate Athletic Association approved tougher academic standards for players and stiffer rules for recruiting. There is also talk of barring all freshmen from intercollegiate basketball and football competitions.

Last year Joe Paterno, a respected coach at Penn State, was quoted in the *New York Times*: "I've always been opposed to freshmen eligibility for varsity sports... I think a student needs his first year as a period of adjustment to college life." Such an arrangement would say to the new arrival on the campus: "You've come here to be a student first. You're just the same as all the others with no special training requirements or perquisites."

These are moves in the right direction. But real reform will come only when the nation's colleges and university leaders declare, with one voice, that education must give priority to students.

In 1905, over two decades before the Carnegie report, David Starr Jordan, the president of Stanford University, had a solution of his own. He said: "Let the football team become frankly professional. Cast off all the deception. Pay him well and let him have the best men in the town and the alumni will pay for."

"Let the teams struggle in perfectly honest warfare, known for what it is and with no misquoting of amateurism or academic ideals. The evil in current football rests not in the hired men, but in academic lying and the falsification of our own standards as associations of scholars and men of honour."

For almost 100 years, scandals in American college athletics have been noted, exposed, have been written, reforms have been proposed. And still abuses grow. Perhaps the time has come for faculty to organize a day of protest, to set aside a time to examine how the serious purposes of the universities are being subverted and how integrity has been compromised by athletic programmes that have taken on lives of their own.

Real reform will come only when a wave of moral outrage sweeps the campus.

Stephen Hagen reveals the mismatch between foreign language teaching and industrial needs

The course of modern languages in this country is reaching a watershed. By the end of the year the Government is expected to make an important policy statement which could set the pattern of foreign language teaching in schools - and by implication higher education - for a generation.

At the heart of the issue is the extent to which provision is, or should be, tied to Britain's commercial and industrial needs. Studies under way point to the urgent necessity of preventing our further decline into a largely anglophone nation fettered by its ignorance of tongues other than school French.

It seems unlikely, however, that the powers that be, the local authorities, Her Majesty's Inspectorate, the University Grants Committee, the National Advisory Body and the Government, will be persuaded to call for more resources to stem the present tide without hard evidence of the link between foreign language competence and trade performance. In this respect findings from recent surveys of firms in the north of England show some way to substantiating the existence of a glaring mismatch between employers' needs and educational supply.

The arguments for reshaping foreign language education more in line with the needs of industry are clear from a number of studies carried out in the late 1970s, principally the British Export Trades Research Organization report, the Barclays Bank report, the Council of British Chambers of Commerce survey and the off-again and on-again Trade Board "Duke of Kent" report. Whether the Government will heed the recommendations made in these and other reports is unclear. Recent papers emanating from the Department of Education and Science, namely *Foreign languages in the school curriculum* (1983) and *Better schools* (March 1985) have so far failed to inspire language teachers.

Only time will tell whether the agreements reached with EEC education ministers in Luxembourg last June to give "a fresh impetus for the teaching of foreign languages" and provide most pupils with "a practical knowledge of two foreign languages" will be fully implemented. A further agreement to maintain a designated centre for the interchange of language teaching information already looks in doubt with the apparent threat hanging over the funding of the Centre for Information on Language Teaching and Research.

Despite the fraught issue of funding, future reform, new "vocationalist" thinking in other quarters has already produced changes in old course structures and initiatives for new ones. The more authentic task-based communicative approach of foreign language modules on the Business Education Council higher national diploma and on the Foreign Languages at Work Scheme, designed for non-specialists in the sixth-form, has dispelled many doubts about the capacity of modern languages in this country to learn from the success of English language teaching abroad.

Paradoxically, we have, as a nation, been particularly effective in developing language teaching methods and materials that help others to export to us in English and particularly slow in helping ourselves to return the compliment in their languages.

Reasons for the comparatively greater language barrier facing British business people are raised in the timely updating of the Liston report published in March. *Business studies, languages and overseas trade*, by Nigel Reeves and David Liston, where language learning is considered as part of a total framework of management education, rather than as an end in itself. This specific issue is also being considered by a Nuffield inquiry, headed by Sheila Browne, which is presently investigating virtually all aspects of modern language teaching in further and higher education.

Part of the brief of the inquiry is to assess "the appropriateness of the present outcomes from language courses in further and higher education to their probable uses". In this respect the terms of reference are remarkably similar to those of Sir James Craig and the UGC investigation into the teaching of Asian and African studies featured in Professor Page's article, "Where in the world do we go from here?" (7/25 March 22).

Yet whereas only 120 graduates from university with a first degree in Oriental, Asian, African languages and/or studies in 1983, this was



Trading in other tongues

countries or regions where you could have significantly improved your trade performance over the last few years with access to foreign language facilities (Yes/No) If so, which languages? Over half the respondents (54 per cent) answered "yes" and listed their language needs as follows: (1) German (51 per cent), (2) French (48 per cent), (3) Spanish (27.5 per cent), (4) Arabic (25 per cent), (5) Italian (15.3 per cent), (6) Japanese (9 per cent), (7) Russian (5 per cent), (8) Chinese (4.5 per cent).

The rank order of languages "in need" corresponds closely to those "in use" in the 1983 survey. Not surprisingly, since the siting of Nissan in the north-east of England, there has been an upsurge of interest in Japanese which is evident in the 1984 survey, but not present in 1983. What is alarming, however, is the widespread, unsatisfied need for Arabic which is rarely catered for within the educational system.

Second, the response to a question on the use of outside agencies for translation/interpreting confirmed the same rank order of languages as above. Not unexpectedly, those companies which claimed in-house language competence listed French (82 per cent), German (54 per cent), Spanish (29 per cent) and Italian (23.5 per cent).

We may assume from this, first, that lost export opportunities are probably not due to a lack of translation bureaux in the region and second, that the language skills already possessed by companies only meet their overall needs in part. One strong possibility is that companies miss opportunities because their employees cannot handle the commercial enquiries which arrive on a day-to-day basis from abroad, whereas the more tangible specialist operations, like written translation or conference interpreting, are left to outside agencies.

Third, companies were also asked to tick the principal activities, from a choice of 12, where they had used a foreign language over the previous three years. Respondents indicated the order: reading letters/telex (68.6 per cent), travelling (60.9 per cent), writing letters (45.5 per cent), writing telex (44.2 per cent), reading technical sales literature (32 per cent), writing technical documents (30 per cent), listening to talks (10.9 per cent), and giving talks/speeches (9.6 per cent). Other activities recorded by the respondents themselves included: meeting customers, exhibitions and negotiations.

The notion of developing foreign language courses out of a central core of similar activities within a framework

of assignments related to local industry has now been the policy of the Business Education Council for over five years. It seems likely that the pressure at degree level for similar employment-related courses will become more acute as students increasingly opt for special-purpose programmes in two or three languages, rather than the traditional single language/literature degree course.

It would be churlish to suggest that all foreign language courses should be tilted strictly to industry and one type of industry at that. There is a strong case, nonetheless, for vocational foreign language courses in the new universities, polytechnics, college of further and higher education to take account of the characteristics and patterns of language demand in local industry when they formulate new syllabuses.

The value of a regionally-based needs-orientated approach can be illustrated from the particular case of Russian in north-east England. The priority given to the different language activities varies for companies trading with the Soviet Union: reading technical/sales literature is as important as reading letters/telex, followed by giving talks/speeches, writing trade documents, travelling and wine and dining. Significantly, using the phone does not appear among Russian users than the compiled total for main subject Russian and Chinese languages and studies. The fact remains, however, that about 10 times as many graduates in French language and studies than in Oriental, Asian and African, and twice as many in French than German.

Given that there will always be disagreements among academics about whose subject is of the greater value to the individual and society, it is vital that the "end-users" themselves are consulted before any share-out of resources. As regards the provision of language studies at a regional level, it is asking that employers' views should be regularly surveyed, particularly in view of the low mobility of school and college leavers.

Surprisingly, few regionally-based studies of foreign language use in local industry have been forthcoming in the 1980s. Even at national level surveys have tended to use samples of fewer than 150 companies. One of the better ones, "Languages and export performance", prepared for the BETRO Trust in 1979, collected data from 200 British firms, of which 60 per cent were successful exporters and to some extent untypical.

What evidence is available from the regions suggests that German is in slightly more general use than French. The same conclusion has also been consistently reached on surveys of industry and commerce in the north of England over the last 12 years.

The two most recent surveys of 1983 and 1984, emanating from the Appointment and Careers Advisory Service and the school of modern languages at Newcastle Polytechnic produced remarkably similar findings using different sets of samples. In the first case the principal objective was to collect general background information on local companies for students seeking employment. Questions on language use were ancillary to this aim, thus providing a random sample of users across all industrial and commercial sectors represented in the region.

Out of a total sample of 616 medium to large organizations and companies, 49 per cent revealed they used foreign languages to either a "little" (68 per cent), or "moderate" (28 per cent) or "extensive" (4 per cent) extent. Amongst this sample of positive respondents the principal languages in use were German (34 per cent), French (31.5 per cent), Spanish (8.5 per cent), Italian (6.5 per cent), European/BEC (4.5 per cent), Dutch (3.5 per cent), Swedish (2 per cent) and others 9.5 per cent.

A more recent survey (summer 1984), "Foreign language use in northern commerce and industry" carried out in north-east England and Cumbria, using a random sample of 241 companies confirmed the same order of placing for German, French and Spanish as in 1983. The objectives of this study were far more comprehensive, however. Variables included: industrial classification of goods traded, company turnover, foreign ownership, ratio of exports to home sales, use of agents, in-house language competence and use of outside translation bureaux. Although a full report is expected in due course, these are the preliminary findings.

First the clearest indication of a link between languages and export performance was given in response to the question, "Do you feel there are any on the survey - as one might expect - where it is very important for German and French users."

Furthermore, it would be inappropriate for Russian business courses in the north-east, for example, to include the language of the shoe trade, since most exports from the region are in one of four broad sectors - engineering, chemicals, mining or electronics. However, this would not be the case in Leicestershire, where there is a thriving export trade in shoes with the Soviet Union.

Whether it is practicable on the one hand to design language syllabuses to meet local needs, while on the other

providing students with a national recognized qualification of general competence remains a headache for educational planners. Yet to disregard regional variations in drawing up national policy on language provision would be to disavow that national needs are merely regional needs aggregated.

Employers' needs are only one part of the picture, since the public is the other major user of foreign languages. The views of individual foreign language users on Tyneside have been gauged in a survey of the registrations for self-access language laboratory courses in Newcastle Polytechnic's language centre, Tyneside.

Faced with a choice of some 30 languages and freed from the onerous constraints of entry qualification, in 1983/84 a total of 449 adult learners opted for French (30 per cent), German (23 per cent), Spanish (17 per cent), Italian (8 per cent), Greek (5 per cent), Russian (2.9 per cent), Arabic (2 per cent), Dutch (1.5 per cent), Norwegian (1.3 per cent) and others (11.3 per cent). When the sample is restricted to vocational learners only (21 per cent), the order is identical except that Arabic and Russian tie for fifth place, pushing Greek out, while German occupies first spot for men and second for women behind French.

It is also worth adding that "vocational users" included a number of language teachers from the area who principally teach French. Comparing the overall findings of 1983/84 with the 10-year period 1970-1980, Norwegian has recently slipped from fifth to ninth position and Dutch has been overtaken by Arabic.

Unfortunately, foreign language centres for public examinations (CSE, O level, A level, B/TEC HND) in 1984 reveal that a gaping mismatch exists between, on the one hand, what employers and non-vocational learners want in the northern region and, on the other, what formal education is offering. It is now well known that the average 15-19 per cent plus of CSE, O level and A level modern language entries are in French and German, while the proportion taking French generally exceeds German by at least three to one.

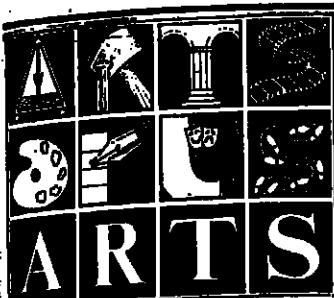
There are, moreover, disturbing trends: in 1984, 1,093 single foreign language modules were completed on the business-orientated B/TEC HND (years one and two) in some 500 centres around the country. First, there were approximately four times as many French modules completed as German; only two individual modules were completed for Italian and one for Russian. Second, CSE modern language entries (all modes) in England for 1981/83 show that Spanish accounts for one third of entries, Italian only one third of 1 per cent and Russian has recently dropped to below one tenth of 1 per cent.

Without drastic intervention there seems little hope of preserving Russian as the only non-western European language being taught to any discernible extent in our schools. The tragedy is that there are some 5,500 teachers in schools qualified to teach Spanish, Italian and Russian, who are not teaching these languages. Moreover, according to *Foreign languages in the school curriculum*, "... the evidence of the staffing survey suggests that there may be a reserve of teachers able to provide teaching in a wider range of languages than is now the case."

The issue facing higher education is whether more resources can be found to set up *ab initio* teaching in those minority languages which employers consistently want, but which the school system fails to provide. It seems apparent availability with one or two "elite" writers and the systems."

Giving students a "leg-up" into the various study systems has always been a central aim of the modern language curriculum. It is not surprising that some of the most successful practitioners who are now successful practitioners are those who were folding back their experience into the student language graduates who, on average, remain unemployed six months after graduation would see it in that way is open to question.

The author is a senior lecturer in modern languages at Newcastle Polytechnic and in charge of the "Foreign language use in northern commerce and industry" survey project.



With VE Day commemorations in full swing, Jeffrey Richards looks at British character in wartime cinema

National identity

The Falklands War was not a long war, as wars go, but its academic and intellectual reverberations rumble on. For the academic hard left, the war was unimpressive. The widespread patriotic support for the war among the working class undermined the hard left worldview, which required the working class to be radical and anti-imperial. For the academic hard right, victory over Argentina was a triumphal affirmation of the return of the "good guys" of history. It stimulated calls for the return of "national history", which for some meant "nationalist history".

"The English, the English, the English are best, go up with the English and down with the rest". When the extremes agree about such a subject it often forces itself to the front of the public consciousness; and since 1982 there has been a stream of radio and television programmes, books and articles, conferences and seminars, on the neglected subjects of patriotism and Englishness. Much of the attention has come to focus on the Second World War, a classic expression of patriotism and the sense of national identity. Since that war was also the "golden age of the British cinema", it seems logical to look at that most popular mass medium for evidence of the projection of national identity.

For historians, the central question about the Second World War is whether it had any real effect on British society. Some (notably Henry Polling and Angus Calder) say no; others (notably Paul Addison and Arthur Marwick) say yes. I am persuaded by Paul Addison's argument in his influential book *The Road to 1945* that a new consensus emerged in the war, which transcended class and party, was based on a belief in the welfare state, full employment and Keynesian economics, and survived until 1979 when it was summarily abolished. A similar consensus emerged during the war about the national character, and this helped entrench it firmly in the national consciousness.

Despite the presence of the obli-

tory token Scotsman (usually Gordon Jackson) in films depicting the national effort in wartime, the national identity in wartime derived almost entirely from England, which was often used interchangeably with Britain to describe the United Kingdom (as indeed it still is by Americans). The war provoked a stream of books and essays on Englishness both by men of the right such as Stanley Baldwin and men of the left such as George Orwell and J. B. Priestley. There was remarkable unanimity between them. They saw the British character as composed of tolerance, decency, anti-intellectualism, insularity, a sense of duty, a sense of humour, a sense of fair play. Their typical Englishman was law-abiding, private, sentimental, class-ridden, patriotic, a lover of home and garden, sports and animals. Above all he was a stubborn and heroic individualist. As Lord Baldwin put it:

He will not be interfered with by his employer, by his neighbour or on a greater scale by other nations. He is apt to resist at a point when his mind is made up and his tenacity... is acknowledged even by his enemies. You can lead him a long way; you cannot drive him an inch. He will neither cringe nor be bullied.

The qualities discerned by these writers and others like them ran through most of the wartime films, transcending differences of class and circumstances. Three qualities seem to me in particular central to the definition of national character. First, there is the sense of humour, a strong component even in serious war films. The Russian engineer (Laurence Olivier) in *The Demi-Paradise* (1943) ("If you can laugh, you can be tolerant and freedom-loving. For there is no laughter where there is no freedom") sees it as the key to the British character. Second, there is tolerance, the only feasible stance to adopt in a nation with more than its fair share of individualists and eccentrics. In wartime, it had a vital political role to play, for



only by mutual tolerance could the consensus necessary to fight the war be promoted. The task for the authorities was to reconcile individualism with the need for a corporate effort: hence all those films about people from different backgrounds and classes, successfully welded together for the war effort (*Millions Like Us*, *The Way Ahead*, *Fires Were Started* etc.).

The third quality is stoicism, the essence of the much-parodied but widely recognized badge of Britishness - understatement, the stiff upper lip and the sense of fair play. This was seen as a crucial element in Britain's survival. The last great film of the war, *The Way to the Stars* (1945), was universally praised for its Britishness, its realism and its emotional restraint. In a sense all three qualities can be equated.

Whether there was or was not a British national character is less important than whether there was perceived to be one. As George Orwell sagely observed: "Myths which are believed in tend to become true, because they set up a type of persons which the average person will do his best to resemble..." It is probable that the stolid behaviour of the British town population under the bombing was partly due to the existence of the national "persona". This national

"persona" was one of the reasons that the government's Home Intelligence Unit concluded in 1941 that "There is at present no evidence that it is possible to defeat the people of Britain by any means other than extermination."

The national self-image is to an extent complacent and self-congratulatory. But it is likely to have been one of the attractions to the general public of the recent popular Channel 4 series of films from the Second World War. There is, however, more to it than that. The general revival of interest in the Second World War seems to me to derive from concern with the world as it is now. People are increasingly drawn to a period characterized by consensus and communal cooperation, full employment and moral certainty, confidence in the present and hope for the future, precisely because none of those things are to be found currently in British society.

Jeffrey Richards

Jeffrey Richards is senior lecturer in history at the University of Lancaster and author of *The Age of the Dream Palace: 1930-1939*. The article is based on a paper given at an Inter-University History Film Consortium Conference held recently at the Imperial War Museum.

Ed Thomason reflects on this year's National Student Drama Festival

Getting on with it

Theatre must be primarily a medium to stimulate a consideration of ideas... "If the theatre is to engage in a real world surely productions are the areas in which experience should be tested; politics addressed...". After all, life and theatre are not separate, and to create theatre on any level means a commitment to the expression of an ideal... "The first rule of theatre is: it's not fair. Once we've understood that it's just a medium of getting on with it".

Prizes for guessing which of these observations was that of a mildly cooped-up judge at the 30th National Student Drama Festival held last month at University College, Swansea. Nor for inferring that he was also one of the numerous theatre professionals who, during a packed week (18 productions this year) gave talks and workshops on a wide range of subjects: script, cabaret, dance, design, theatre politics, dramatic characterization, Shakespearean text, and even one called "Teachers and Gamekeepers".

Giving students a "leg-up" into the various study systems has always been a central aim of the modern language curriculum. It is not surprising that some of the most successful practitioners who are now successful practitioners are those who were folding back their experience into the student language graduates who, on average, remain unemployed six months after graduation would see it in that way is open to question.

So, if the quotes at the beginning of this piece give the impression that students who practise theatre are worldly posers decked out in off-the-wall theories - well, that's only part true. Though there was certainly some of that around in Swansea and indeed the home team from University College scored highly on the Emperor's New Clothes scale. Their tilted *Miss Julie*

among the prize winners. This was fair enough as, in spite of some powerfully communicated images - it began with a jig performed with stone-faced faces in contact with the audience - it was a cacophonous prisoners' demonstration while torture was mimed in the background - the compilation of a documentary source material was so slanted as to make the sun of the whole negate the truth of the parts. At the post-production open discussion (a daily feature at the festival) Robert Hewison, *Sunday Times* theatre critic and also one of the festival judges, made this point and elaborated it later with the Leicester company who invited him to test his ideas in a workshop. He did, and during the next two plays managed to give the occasional sharp comment. Lines were cut, passages rearranged, a song was added and a fundamentally revised script was given a rehearsed reading at the only available free time - midnight. An audience of about thirty people took this rare opportunity to see genuine work, in progress and discussed it afterwards with the cast and a drama critic flushed with his money where his mouth is.

So, if the quotes at the beginning of this piece give the impression that students who practise theatre are worldly posers decked out in off-the-wall theories - well, that's only part true. Though there was certainly some of that around in Swansea and indeed the home team from University College scored highly on the Emperor's New Clothes scale. Their tilted *Miss Julie*

staff of a department store - or in the more low-key treatment of two girls coming of age in *Now You See Me*. As the director of this second piece for the Manchester Umbrella Company Ms Teale set the action around a scaffolding climbing frame with hardly any other props - an ironing board for Mum, all-enveloping newspaper for Dad - and thus organized her material with a fluency and an eye for focus which was deceptively simple. This sureness of touch only comes with total control.

This sense of a secure hand at the helm was also evident in Julia Bardley's Middlesex Polytechnic production of *The Cupboard Man* for which she won the RSC/Buzz Goodbody Student Director Award. Her achievement is perhaps that much more impressive considering she began with somewhat unlikely theatrical material. Ian McEwan's short story is about an introverted who's literally been kept as a child until his teenage years when he's thrust into an unsympathetic world of menial jobs and squalid beds from which he finally withdraws to live in a cupboard. Using just a large wardrobe from which Phelim McDermott's hauntingly realized protagonist emerged to tell his tale, Julia Bardley orchestrated a subtly shifting lighting plot and a sensitive choice of music to exactly support the imagery of alienation and isolation in the text without ever seeming to be striving for effect. By the end when the doors of that cupboard closed on its occupant with a measured, awful inevitability Ms Bardley had pulled off the most galvanizing theatrical event of the festival.

She's already formed her own company, Derek Derek Productions, with Phelim McDermott and like Phelim she's a playwright. With *Miss Julie* she has no trouble "getting on with it".

Events

Continuing exhibitions:

To May 15. Goldsmiths' College, London. Paintings by the Caribbean artist Aubrey Williams, part of the college's "Caribbean fortnight".

To May 19. Museum and Art Gallery, Leicester. Evelyn Williams: painted relics, charcoal drawings and wax sculptures.

To May 22. Brighton Polytechnic. The *Notre-Dame World of Edward Lear*, illustrations by John Vernon Lord.

To May 23. Library, University of Warwick. *Leaves never grow on trees*: 34 prints from Max Ernst's *Histoire Naturelle*.

To May 25. Hutton Gallery, University of Newcastle. *Mata: the logic of hallucination*.

To May 26. Ashmolean Museum, Oxford. Drawings and Watercolours by J.M.W. Turner.

To May 30. Collins Gallery, University of Strathclyde. *Peacock 10: a decade's work from Peacock printmakers*.

To May 31. Art Gallery, University of Nottingham. Architecture and Utopia: how architectural language has been used to explore Utopian visions.

To June. Norwich School of Art. Edward Wright: graphic work and painting prints.

To June 2. City Art Gallery, York. Drawings by Bonnard.

To June 2. Sainsbury Centre, University of East Anglia. Sculpture and drawings by John Davies.

To June 9. Victoria and Albert Museum, London. Newton Rothschild: paintings for the labels.

To June 16. Art Gallery, Kelvingrove, Glasgow. *Curling in Scotland*: paintings and drawings depicting the sport, along with objects from its history, and a reconstructing of the curling house at Penicuik, Midlothian.

Concerts:

May 10. University of Manchester. Lindsay String Quartet with David Fanning (piano): quartets by Mozart and Tippett.

May 11. Kingston Polytechnic. Early Music Group, directed by Peter Johnson; New Music Ensemble, directed by John Howland.

May 11. University of Reading. Lecture-recital by Nigel Burton on the Art Songs of Sir Arthur Sullivan.

May 11 to 26. Crucible Studio, Sheffield. Schubert Festival.

May 15. 1.10 pm. Belvoir, University of Leicester. Archduke Trio: Haydn and Beethoven.

May 15. Arts Centre, University of Warwick. John Lill (piano): Beethoven, Schumann, Chopin, Liszt.

May 16. Turner Sims Concert Hall, University of Southampton. University Musical Society Choir with Orchestra, conducted by James Lancaster and Colin Walsh. Programme includes motets for double choir by J. S. and J. C. Bach; Epitaph Sonatas and Mass in B flat by Mozart.

May 17. University of Manchester. Programmes of new music by recent graduates of Manchester and Nottingham Universities.

May 24. St John's, Smith Square, London. Gala Concert by the orchestra of the National Centre for Orchestral Studies at Goldsmiths' College, London, in aid of Goldsmiths Hall Restoration.

Other events:

Tonight, Theatre Underground, University of Essex. *The Easter Eggs*, presented by Clean-Break, a women prisoners' theatre company.

Tonight, tomorrow. Contact Theatre, University of Manchester. Sophocles *Oedipus Rex*, directed by Anthony Clark.

May 11 to 25. Reading Festival: wide-ranging arts festival. Inquiries to Reading Festival, 14 Union Street, Reading.

May 13. Goethe Institut, London. Lecture by K. M. Short on "The collapse of the Third Reich as presented in American newscasts".

May 13. University of Surrey. D. J. Enright lectures on "the uses of euphemism".

May 14. Wolverhampton Polytechnic. The Teatr Blik: Polish mine company.

May 14 to 25. New Theatre, Cardiff. Welsh National Opera new season. Performances of *Rigoletto*, *Tosca* and *Norma*.

May 15 and 16. Nuffield Theatre, University of Lancaster. Howard and Eberle Dance Theatre: *On the Rocks*.

May 15 to 17. Gulbenkian Studio, UCL. *Miss Hilda Pleyers* present Taylor Dance Theatre contributes to the Newcastle Jazz Festival.

May 16 to 25. Chapter Arts Centre, Cardiff. *Renovations* by John Schneider presented by Theatre X of Milwaukee.

May 17 to 25. New Theatre, Cardiff. *Miss Hilda Pleyers* present Taylor Dance Theatre contributes to the Newcastle Jazz Festival.

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BOOKS

After the fall

Towards a Christian Poetics
by Michael Edwards
Macmillan, £20.00
ISBN 0 333 35402 8
The Penguin Book of English Christian Verse
edited by Peter Levi
Penguin, £2.95
ISBN 0 14 042292 7

Michael Edwards believes that we must read the Old and New Testaments together as a closely interrelated presentation of a dialectic of Edenic happiness, Fall and misery, rebirth and renewal. He believes that "language and literature... advance through that same process, and from it derive their power and urgency". The naming of the animals in Eden by unfallen Adam represented a prelapsarian use of language in which the animals, Adam's understanding of them and the actual mental and physical properties of his words truly corresponded. But language fell with the serpent's misuse of it to trap Eve, the result was Babel, and literature is the result of man's wrestling with fallen language both to re-enact the sequence of Eden, Fall and Transformation and to illustrate the problems and paradoxes involved. "Literature occurs because we inhabit a fallen world."

A somewhat similar point was made by the world leader Mustapha Mond in Aldous Huxley's *Brave New World*: in a properly adjusted society, he told the Savage, none of the frustrations and yearnings that produce literature are allowed, and therefore literature is unnecessary and meaningless. One may agree with the general point that it is the ambiguities and contradictions of the human condition that lead to the production of art without accepting either Edwards' reading of the Bible or Huxley's vision of the future, and indeed there is in Edwards' book much interesting and subtle discussion of, for example, the way language works in tragedy and in comedy that can be accepted by someone who rejects both positions. Sentences such as "Cropping in the semantic obscurity of a world in which the devil has spoken the tragic hero goes to his death" or "that this (Molliere's comedy) a comic triumph over the fall of language into multiplicity—a delighted derision of Babel"—sentences such as these can be read in a variety of metaphorical ways that yield insights

even though they may not be the narrowly defined Christian insights that Edwards returns to again and again and which he reiterates in his conclusion. His interpretation of certain Old Testament texts seems to be dubious: the word of God there is not at all the logos of the Gospel of St John and to discuss the discourse of Adam and Eve as "derived from an immense language that had made and was sustaining the whole world" is quite apart from the implied assumptions about the historical status of Adam and Eve—to express a thought quite alien to Old Testament traditions, is though it is akin to some Cebalistic notions.

Yet we must be grateful for Edwards' determination to forge a Christian poetics, for even if some readers may feel that the doctrinal underpinning of his argument derives from one particular kind of Christian reading of the Bible that not even all Christians would accept, his task in charting the destinies of a "fallen" language leads him to some fascinating perceptions about the ways in which language can work in literature and in particular about the ways it works in the poetry of T. S. Eliot. His range of reference, his familiarity with French literature, his apt use of parallels with the visual arts and music, his wit, his ability to bring recent critical theories to bear on his own preoccupations, yield a work constantly lively, challenging, even at times startling.

In his most interesting discussion of *The Waste Land* Edwards maintains that certain words and images in the poem "accumulate not to compose but simply to accumulate. And they are loosened from referents, especially the row of proper names, which like the other proper names in the poem refer to nobody and exist as mere words, additions of syllables, though giddy with conjecture." In that case, the line he refers to, "De Baillhache, Fresca, Mrs Cammel", could consist of any other names at all that fitted the movement of the line: one could presumably substitute, say, "Rumpleman, de Vilbis, Musselbree" (which equally "refer to nobody and exist as mere words") without any loss of effect. Perhaps indeed one could, but that would not help Edwards' view of the poem.

The book is studied with provocative and sometimes startling statements and aphorisms. It challenges many of one's preconceptions and enlarges one's perspectives. Its inconsistencies of tone, sometimes jerkily personal, sometimes gainfully analytic, sometimes scriptural and prophetic, can take the reader aback. It can annoy as well as stimulate. But then of course it is written in a fallen language to be read by a fallen world.

The "dialectical" view of Christianity presented by Edwards does not

involve a presentation of such specifically Christian doctrines as the Virgin Birth, the Trinity, the Incarnation or the Resurrection, though the last two at least are implicit in his view of rebirth and renewal. And though to even an archbishop may express doubts about the literal truth of some of these doctrines, there is surely a difference between Christianity and other theistic religions. The temptation for an anthology of Christian poetry is to include poems that are about religious experiences that are not peculiarly Christian. William Kettle's version of Psalm 100, "All people that on earth do dwell", is certainly compatible with Christian belief but is not a distinctly Christian utterance. ("The psalms," Peter Levi admits in the introduction to his anthology, "are not exactly Christian.") There are, perhaps inevitably, many poems in this book that are "not exactly Christian." They include poems by Thomas Campion, Sir John Davies, Blake, Clare, Browning, Arnold, MacNeice, among many others. In his interesting introduction Peter Levi discusses the problem of defining a Christian poem for the purposes of this anthology, and concludes that "a Christian poem is a

poem by any Christian which touches on Christian themes or implicitly throws a Christian light on some common experience". Does he mean an exclusively Christian light? What differentiates Christianity from other religions is its view of the nature and role of Christ: poems about God's power or love or the hope of immortality or the wonder of a First Cause or about the mystery of the universe which somehow do not bring in this differentiating view may be religious poems by Christians but are not specifically Christian poems. George Herbert, now there is no problem there, nor is there with Donne's *Divine Sonnets* or Hopkins or much of the later Eliot. But even the two poems on King's College Chapel—one by Benjamin and one by Charles Causley—are evocations of atmosphere and of history rather than Christian poems.

Perhaps one has to conclude that in spite of the fact that the great mass of English poetry arises out of a Christian background, there is surprisingly little specifically Christian English poetry. What Levi says of Shakespeare and his generation—"in all that vast opening of horizons and victorious and intricate flowering, Christianity was a silent

condition, it was not the dominant theme"—might perhaps be applied more generally.

Levi has omitted medieval poetry, which makes his task more difficult, and for perfectly good reasons he has omitted all but a very few hymns by Isaac Watts and Charles Wesley. The selection as a whole is original and impressive, including long extracts from David Jones's *In Parenthesis* and *The Anathemata* and a substantial extract from Robert Lowell's *Quaker Graveyard in Nantucket* (which is a Christian poem). Whether it is a book of Christian verse is another question. Non-Christians tend to resent the description by Christians of any sensibility that recognizes the mysteries and paradoxes of life as *anima naturaliter Christiana*. But this is perhaps an unnecessary wrangling about categories. More important is that we have here much fine English poetry, however variable its relation to Christianity may be.

David Dalches

David Dalches's latest book is "God and the Poets".



This 1937 portrait of W. H. Auden by Sir William Coldstream appears as the frontispiece in Allan Rodway's *A Preface to Auden* (Longman, £5.50 and £3.00).

origins as a thesis but avoiding the temptation to schematize Foster's random thoughts and perceptions into a coherent philosophical programme. Advani places Foster's liberalism sharply, at the historical point where "the efficacy of the inner life as a means of gradual social improvement and order had been discredited" and the central question became "whether the liberal stress upon self-development, moral individualism, enlightenment and the arts had any relevance even as an *end* in a world which required social, economic, and international order". He discusses at length Foster's ideal of a personal inner freedom against a purely political one; and he rightly links this to the fundamentally Romantic aesthetic which *Two Cheers for Democracy* broadly upholds. He also resurrects at least two unpublished essays, one entitled "The Ivory Tower", the other a hard grapple with the problem of Kipling, which have substantial bearing on the case.

And in their curious, whimsically assertive way, Foster's attitudes continue to stand unassailably intelligent and humane. To preach unity, universality, inner peace, in 1947 was an act of considerable moral imagination, especially as it was held in balance with a straightforward utilitarian dislike of point: when asked to nominate someone for a radio series on the world's greatest benefactors, he chose not Beethoven or Voltaire, but the inventor of chloroform.

What Advani's treatment lacks, unfortunately, is any sense of Foster's personal life as an informing influence on his thought. There is barely a mention, for instance, of the fact that his homosexuality—surely his crucial moral experience and the factor that put him at that "slight angle to the universe"—which is the perspective of his writing. Without its proper hero at the centre, the book makes a somewhat muted impact.

This is more than can be said, however, for Denis Dowling's *Bloomsbury Aesthetics in the Novels of Forster and Woolf*, where it is difficult to determine quite what is going on at all. It begins with an account of the aesthetics of Roger Fry, Clive Bell, and "Bloomsbury's Gallie representative" Charles Maugham. One is faced with the immediate problem of their concepts of "aesthetic ecstasy", "psychological volume", and "aesthetic form" are so woolly and elusive to be applicable to anything, or nothing, at all. Dowling then sets out to apply such unelucidated principles to the novels of Forster and Woolf, but falls inevitably into a mish-mash of general observations on imagery and artistic form, in which the names of Fry, Bell, and Maugham bob up only rarely. Much of the discussion is familiar stuff: the "temporal" novelists trying to be a "spatial" painter (Lily in *To the Lighthouse*); the tension between pattern and accident in Forster's *The Longest Journey*; the "symbolist" belief in the interior dependence of the arts. Crashing blue-dergers like the misanthropic of Duchamp's *Nude Descending a Staircase* to Magritte do not increase one's confidence in this baffling enterprise.

For different reasons, these two new studies will both reinforce the trend, although Rukun Advani's book tries to quash the notion that Foster died up after *A Passage to India*, by surveying the subsequent large, but miscellaneous body of essays, lectures, and broadcasts in which Foster continued to explore the themes which underlay his fiction.

It is a modest, useful, and comprehensive book, bearing the marks of its

Rupert Christiansen

Rupert Christiansen is currently working on a study of Rohinton Mistry.

BOOKS

Future shock

Re-Working the Work Ethic: economic values and socio-cultural politics
by Michael Rose
Batsford, £5.95
ISBN 0 7134 4723 0
Paths to Paradise: on the liberation of work
by André Gorz
Pinter Press, £3.50
ISBN 0 85104 762 1

In the USA and Britain in recent years political leaders have called for a return to "Victorian values" prominent among which is the "work ethic". This presumes that the populations of these advanced western industrial nations once subscribed to the "Protestant" work ethic. André Gorz believes they did but that of "all contemporary socio-cultural changes this disaffection from work is the most significant".

Michael Rose is much more circumspect; he picks his way cautiously between the arguments of those like Gorz who welcome its demise and

those on the political right, who advocate its reestablishment. Rose achieves this essentially by suggesting that these societies never subscribed to such an ethic in the first place.

The notion of the Protestant work ethic is most strongly associated with Max Weber. Weber set out to demonstrate that the ideas and values derived from Protestantism accommodated and nurtured the growth and development of that dynamic process of production we now call capitalism. Essentially this value system embodied the notions of individual striving for success, of a commitment to work and a diligence at work, of a willingness to comply with the just orders of an employer and a willingness to defer gratification and accumulate. Are the notions appropriate any longer?

Other cultures and religions emphasize work commitment and work competence, and countries embracing other cultures have recently proved among the more successful capitalist nations. But these countries, Asian nations and most prominently Japan, have emphasized that this involves flexibility and a dependence on and willingness to adapt to the demands of group life rather than the individualism emphasized in Protestant culture. This "Confucian" model of human behaviour is evidently more appropriate to large-scale production which is the most important feature of advanced capitalism.

The individualism of Protestantism

is more appropriate for entrepreneurs, indeed it may be essential to the function. It seems to emphasize values that are neutral as to the desirability of efficient worker performance. Weber, Rose suggests, was indeed more concerned with detailing the cultural conditions necessary for successful entrepreneurial activity than worker performance. Deferred gratification, is, in Rose's view, also less appropriate for modern capitalism. A new hedonism emphasizes the right to pleasure from possession and the importance of immediate consumption, a view encouraged by advertising. Rose suggests that modern economic performance depends ultimately on "avid" consumption.

Other commentators have noted the changing nature of work in modern industrial society as employment shifts away from large-scale manufacturing plants to smaller-scale knowledge-based industries. These industries emphasize individual initiative and autonomy, they offer greater scope for discretionary effort for "optimal" performance, but in so doing they weaken traditional control mechanisms and work loses its sacred character. Work, these other commentators suggest, becomes less valued as an end in itself as individuals challenge the organization of work and submit less readily to authority. These, they suggest, are the characteristics of post-industrial and post-bourgeois society.

Rose argues that it is wrong to suggest that the decline of the manufacturing sector is leading us toward a post-industrial society. Manufacturing never dominated particular societies in the way frequently suggested, for in only one or two industrial societies did it ever account for more than one third of employment. Of course it has to be recognized that the methods and organization employed in the service sector were those pioneered in the manufacturing sector, but this is equally true today. In fact, knowledge-based industries are hardly typical of the service sector and it is therefore inappropriate to generalize from them.

The Victorian work ethic and any recommitment evident today, Rose suggests, reflect economic necessity. They reflect a constrained compliance and calculated behaviour in conditions of weakened organized labour power and competition for jobs, the direct result of high unemployment. Similarly the challenge to authority and the emergence of what seems to be anti-efficiency, anti-productive views, hallmarks of post-bourgeois society, are no more than an expression of frustration by highly trained and educated employees. They see many ways of increasing efficiency and output but are ignored by management. Indeed a new materialism is evident among young professional workers who emphasize the centrality of work. Work for them is a necessary condition for realizing high income which is a

precondition for high consumption. In these developments women are playing a central role; they are becoming increasingly "employment-centred". It seems reasonable to conclude therefore that the commitment to work, rather than a work ethic, remains as strong as ever.

For Gorz discussion of the work ethic is secondary to a discussion of the possibilities of liberation from work. Drawing on the work of Alvin Toffler, he argues that automation will result in 30 to 50 per cent of the workforce of the advanced industrial nations being unemployed by the end of the century, unless we realize the potential for liberation from work this offers. "Automation takes us beyond capitalism and socialism," says Gorz. "The microelectronic revolution heralds the abolition of work." Combined with "the current disaffection from work" it offers the prospect of a new era. It offers the prospect of a guaranteed income for life for all workers, not at some minimum subsistence level, as those who advocate a negative income tax suggest, but at a substantially higher level.

Gorz claims that such a guaranteed income will promote a more enlightened view of work, the sharing of work, the development of less market oriented methods of production and commodities. It will encourage smaller scale production, break down professionalism and with it, the status of social elites. All this is asserted, it certainly does not follow automatically or even necessarily from high minimum income guarantees.

Who is to organize these new economic and social arrangements? Gorz is keenly aware of the repressive potential of the state but offers no details of the form of political arrangements which will keep this in check. Indeed there is a profound economic and political naivety, some might say optimism, evident throughout the book. Automation, it is asserted, will result in the disappearance of market costs, become negligible. Thus we approach conditions of abundance, but how can we produce an abundance of that scarce commodity, time? Again there is the suggestion that we may return to a barter economy, but this would be to deny ourselves the substantial efficiency gains from the existence of a medium of exchange. The author admits that automation requires a highly specialized workforce and extended division of labour, but how are these to be achieved in a barter economy? These and many other questions are left unanswered.

Thus the books offer very different perspectives on the role of the work ethic and future of work in modern capitalist society. Gorz's polemical Marxist suggesting that automation offers the prospect of freedom from work, presents an entertaining, yet unconvincing view of the future. Rose offers a systematic and studied evaluation of the issues which is less entertaining but of greater immediate importance.

R. F. Elliott

R. F. Elliott is senior lecturer in political economy at the University of Aberdeen.



Women in domestic service 1902: from Arthur Marwick's *British in Our Century* (Thames & Hudson, £12.95).

multating in much more systematized form, which shows organized labour in the UK at one (by and large) with UK employers (in the main) in defending the gap between rhetoric and reality in equal pay, equal access, equal status for women at work—UK and EEC legislation notwithstanding.

The lecturing tone of the book is not rendered persuasive by sentences like: "The conception of the problem in women's employment approaches the social structural level which provides a universal framework within which selective measures have been developed to fully integrate women into the labour market." There is a great deal of this kind of prose. There ought to be a law against it.

Gay Firth

Gay Firth was formerly at the Equal Opportunities Commission.

goes on to analyse judicial decisions in a number of labour law areas in order to see what evidence of bias the judgments in the cases reveal (no other type of evidence is considered). It did not become clear to me which variety of bias is being investigated. Sometimes, the question asked is whether a particular line of cases revealed "enmity towards organized labour" or "a naked judicial desire to interfere in the affairs of trade unions" or "an unduly hostile attitude" to the aims of the statutes concerned. Here the question seems to be one of conscious bias and the author can be found defending the judges, as he does in relation to the redundancy payments scheme, on the grounds that, although the judges' decisions have led to "many instances of the frustration of certain major aims of the scheme", nevertheless "they have merely applied the words of the statute as they have understood them." One might be forgiven for thinking that this should be the beginning, not the end, of inquiry. How does it happen that judges can understand the words of a statute in such a way as to frustrate its major aim?

By the end of the book, however, Davidson appears to have convinced himself that "unconscious bias is the major issue, as indeed it is, and the last chapter is a very brief discussion of the nature of judicial values. However, to say that some judicial decisions—usually the most important ones—are based upon "policy" or the making of value judgements is not necessarily to say anything about bias. No one can really think that the common law developed as it has without the judges, on occasion, making value judgements and some statutes, in all areas of law, positively invite the courts to engage in this exercise, for example, by decreeing whether a particular dismissal was fair or unfair. In deciding unfair dismissal cases the tribunals must choose the value to be placed upon, respectively, the employer's economic interests and the employee's social interests. The process is essentially one of judging values. Many different outcomes are possible. But the author of this book does not tell us how to distinguish biased outcomes from unbiased ones, or are all value judgements biased?

Paul Davies

Paul Davies is fellow and tutor in law at Balliol College, Oxford.

Seeing Shandy plain

Tristram Shandy
by Max Byrd
Allen & Unwin, £15.00
ISBN 0 04 800033 7

"Tristram Shandy is the most typical novel of world literature". When Viktor Shklovsky made this comment in 1921 it must have seemed as odd as the novel itself seemed to Dr Johnson in 1776, when he said to Boswell, "Nothing odd will do long. *Tristram Shandy* did not last". But Shklovsky's remark, like Johnson's, is now a commonplace. Sterne's book is the delight of narratologists and for good reasons.

Yet it is important to remember that the novel is not simply a storehouse of fictional devices: it is also a book about living and about how one experiences the world. It gives in some respects an extraordinarily detailed view of domestic life: a door sticks in the Shandy household, for example, and contributes to Tristram's misfortunes. *Tristram Shandy* is a book about the interaction of man and his environment, about how families work as social units, about the sentimental pleasures of everyday life, about mortality and the defiance of death. It is also a satire against intellectual systematizers, against the cult of feeling and against autobiographical novels, and it

is a late example of a tradition of learned wit that goes back to Rabelais.

Not surprisingly this diversity has provoked an extraordinary outpouring of criticism in recent years. Lodovico Hartley's bibliography covering the years 1965-1977 has 409 entries, representing one scholarly contribution every 11 days, with no respite for holidays and the like of the flesh. In the face of this a new book on Sterne has to work hard to overcome reader resistance. One test is how far it can accommodate *Tristram Shandy's* variousness and make sense of the novel as a whole. Max Byrd, in a volume addressed to "serious students and teachers of literature and knowledgeable 'non-academic' readers," attempts just this. He lays emphasis on the process of the novel, a change in its nature and emphasis during the eight years of its composition which gradually gives a central place to Uncle Toby and a new prominence to Tristram as narrator, and he points out that in one crucial matter, that of explaining their own lives, Toby and Tristram resemble each other and in turn resemble the author, who insisted that his book could be best understood as a picture of himself.

The personalities are defined as the story progresses but they have, as it were, a resistance to definition. In an early and suggestive passage Byrd quotes the sociologist Erving Goffman on the significance of role-playing. Goffman argues that "while we may be seen as playing roles in our daily lives, there are moments in which, even as we act out a role, we wish to make it clear that we suggest some disaffection with it". The exaggerated gestures and indications of the lecturer, for example, who in 1976 he is

Similarly what Byrd calls "the extravagant expansion of scale" that characterizes the attempts of Toby and Tristram to reveal themselves both mock and makes clear the inner nature of these characters. The exaggerated display of Toby's creation of model battlefields and Tristram's determination to write two volumes a year for the rest of his life. In its turn the conduct of the narrative reflects obliquely on Sterne's sense of his own role as clergyman and author.

In each case self-explanation grows in part into a joyous hobby-horse but provoked and given particular direction by the intractability of language. Byrd has an acute chapter on Sterne's style, noting, for example, the pervasive use of subjunctive constructions to "destabilize the world of the narrative" and explaining the omnipresence of the dash as a mark of punctuation as part of the conversational tone, "one of several contemporary responses to an unseen, impersonal audience". He also discusses briefly but challengingly the question of Sterne's debt to Rabelais, Cervantes and Swift (though not Montaigne), attempts to set Tristram's Shandy's relation to the development of sensibility and gives an account of the critical reception of the novel.

In all, this is a balanced and clear account, penetrating in its local analysis, making good use of earlier work but presenting a distinctive view.

John Chalker

John Chalker is professor of English at Westfield College, London.

Inner freedom

E. M. Forster as Critic
by Rukun Advani
Croom Helm, £16.95
ISBN 0 7099 0549 9
Bloomsbury Aesthetics and the Novels of Forster and Woolf
by David Dowling
Macmillan, £22.50
ISBN 0 333 33474 5

It is a fact of some cultural significance that recent efforts, such as Martin Green's *The Doom of Empire*, to criticize Kipling as the major Edwardian novelist have replaced the stream of tributes to Forster—the humanist in an age of ideology—which flowed in the sixties. Imperialism has replaced liberalism as a focus of academic interest; there is a feeling that Forster's vision was limited and soon exhausted. In his own phrase, he was "the flag-end of liberalism": a novelist we have now got to the bottom of, safe to be set for school exams but no longer very challenging.

For different reasons, these two new studies will both reinforce the trend, although Rukun Advani's book tries to quash the notion that Foster died up after *A Passage to India*, by surveying the subsequent large, but miscellaneous body of essays, lectures, and broadcasts in which Foster continued to explore the themes which underlay his fiction.

It is a modest, useful, and comprehensive book, bearing the marks of its

BOOKS

CHEMISTRY

Beneficial extracts

The Chemistry of Natural Products
edited by R. H. Thomson
Blackie, £46.00
ISBN 0 412 00551 4

Natural products (or secondary metabolites) are those materials isolated - often in considerable quantities - chiefly from plants, from cultures of microorganisms, and from insects. Primary metabolites are found in all living organisms and are essential to life. By contrast, secondary metabolites have restricted distribution: they are confined to a particular genus, species or even a particular variety or strain; and they seem to be non-essential to the life-function of the organism that produces them.

Why secondary metabolites are made is very often obscure, although there seems to be a general pattern of use as a means of communication between organisms; and this is illustrated most clearly in the pheromones produced by insects, which are used for attraction, attack and other means of communication. In plants, although it seems that natural products are used as a means of warding off predators and competitors, this is a difficult thing to prove one way or the other. In some cases, the natural product may be a remembrance of a battle won in times past. One simple example of a natural product used to ward off competitors is the quinine, which restricts the growth of plants in the vicinity of walnut trees and which is secreted by the leaves of the tree in hydroquinone form to be washed by rain into the soil, there to be oxidized to the quinone.

Many natural products from plants have marked physiological effects in man, something which has been exploited from prehistoric times up to the present day. The earliest natural products to be used were contained in crude plant extracts: for example, quinine from the bark of the cinchona tree is used as a remedy for malaria; and curare, a plant extract which contains several toxic compounds (alkaloids), is used by South American Indians as an arrow poison. A component of curare, tubocurarine, is now used, as a muscle relaxant in surgery. The use of extracts of the opium poppy has an ancient and sometimes notorious history. The poppy is now cultivated in large quantities as a legal source of the alkaloids - morphine, thebaine and codeine - that it produces, and as an illegal source of heroin (O-acetyl morphine). In addition, many of the antibiotics used by man in the treatment of disease are obtained directly as natural products from microbial cultures - for example, the tetracyclines, streptomycin and the penicillins.

The development of organic chemistry has been, and continues to be,



Coffin for a mummified cat (about 700 BC), from *Evidence Embalmed: modern medicine and the mummies of Ancient Egypt* edited by Rosalie David and Eddie Tapp (Manchester University Press, £15.00 and £6.50).

associated with natural products. Curiosity about a natural product is often initiated by some interesting potentially exploitable - biological effect. The first thing that must be done is to determine its structure; and to do this we can now use a wide variety of powerful spectroscopic techniques - most notably, nuclear magnetic resonance spectroscopy. The chemical synthesis of the natural product confirms the structure assigned to it and should lead to the discovery and development of new organic chemicals. Knowledge of the structure leads on to a curiosity about the way in which the natural product is made by the organism; and this can be followed by experiments in biosynthesis involving the living organism.

In *The Chemistry of Natural Products*, R. H. Thomson and his able band of collaborators have sought to survey the chemistry of the important and varied compounds that have been described during the past ten years. As the primary literature on this topic is vast, it is no mean feat to have condensed all this material into 467 pages. Aspects of the structure, determination of natural products and their synthesis is the subject of nine interest-

ing and authoritative surveys, beginning with carbohydrates and ending with porphyrins. The topic of biosynthesis is deliberately eschewed, except in passing. In fact, however, biosynthesis underpins, as always, the division of natural products into alkaloids, terpenoids, steroids, and so on, and largely defines the chapter subdivisions.

Some of the chapters do overlap from secondary metabolites into primary metabolites - for example, those on nucleic acids and porphyrins. The index works well and each chapter has a helpful collection of references to the primary literature. The illustrations and production are excellent.

This rich digest of interesting chemistry makes informative and enjoyable reading; the chapter on amino acids, peptides and proteins being particularly good. Though intended very much for the specialist, some sections might interest the undergraduate.

R. B. Herbert

R. B. Herbert is senior lecturer in organic chemistry at the University of Leeds.

Electronic motions

Electron Correlation in Molecules
by S. Wilson
Clarendon Press: Oxford University Press, £40.00
ISBN 0 19 855617 9

With the rapid development of computer technology since the mid-1960s, computational theoretical chemistry has evolved to the point where molecular structure calculations can be used with a high degree of confidence to complement and, in some cases, to anticipate experimental results. For example, although information about transient molecular species that occur in chemical reactions can only be inferred indirectly from experiment, it is now possible to perform accurate calculations to elucidate the structure of those species without recourse to experimental data.

The results of such calculations often lead, in turn, to new chemical concepts which can be applied subsequently in a qualitative fashion to rationalize a large quantity of experimental data. The major factor that controls the accuracy of such calculations (and thus one's confidence in the results) is the proper treatment of electron correlation. The book contains a discussion of the physical origins of electron correlation and the mathematical methods currently used to incorporate it into molecular structure calculations.

Molecular structure computations involve the solution of the Schrödinger equation for the motion of the electrons of the molecule in the field of fixed nuclei. Approximations are required which lead to computationally tractable methods, and those approximations are usually formulated as models which are calibrated by comparison with experiment. The basic model used in molecular structure computations is the independent electron model, in which the problem is formally decomposed into one-electron problems, and the motion of a single electron is considered in the field of the nuclei and the other electrons (molecular orbital theory in the form of the Hartree-Fock model).

Although this model can represent the molecular structure of stable molecules at or about equilibrium, it cannot describe the homolytic bond fission that occurs during chemical reactions. (Homolytic fission involves the breaking of a covalent bond, so that one free electron from that bond is left on each fragment - resulting in two free radicals.) Large errors can therefore ensue when one compares the energies of two molecular species with different electronic structures (for example, the reactants and a transition state; or a molecule and its molecular ion).

This deficiency arises because the motions of the electrons in a molecule are not independent and must be correlated. Each electron must be allowed to see the instantaneous repulsion of the other electrons rather than the average effect of those repulsions, as in the independent electron model. The numerical magnitude of this effect is referred to as the electron correlation

energy, and electron correlation energy differences for different molecular species are often of the same order of magnitude as the chemical energy differences one is attempting to compute.

The past 15 years has seen the development and exploitation of a large number of theoretical models for the treatment of electron correlation in molecules. During this period, the necessary computer software to carry out molecular structure computations (including the effects of electron correlation) has also become accessible to the non-specialist. Further, very sophisticated molecular structure computations are appearing in the chemical literature; and the large number of possible theoretical models present problems both for the specialist and non-specialist. To give some concrete limits for a particular computation carried out using one of these models requires a knowledge of the specialist literature that is difficult to obtain. *Electron Correlation in Molecules* provides a comprehensive treatment of most of the methods currently available that transcend the independent electron model.

Dr Wilson's approach to the electron correlation problem, however, is quite different from most standard treatments. His basic methodology, as presented in the chapter on many-body perturbation theory, and that on group-theoretical methods (the symmetry group, and the many-body group), provides a framework in which many of the models used for the treatment of electron correlation can be discussed from a unified point of view. Indeed, the use of unified groups has provided insights that have led to very efficient computational implementations using super-computer technology. Many-body methods, on the other hand, as well as yielding computational models, provide a framework for the discussion of electron correlation, as the number of electrons becomes large. Dr Wilson's introduction to the literature for both these difficult areas will be of value to specialists and non-specialists alike.

The book is divided into three parts: a review of independent electron models and the physical origin of electron correlation effects; a mathematical statement of the problem via many-body perturbation theory and unitary groups; and a study of the practical implementation of models for the study of electron correlation effects in molecular structure calculations. The latter section includes treatment of the most widely applied method, "configuration interaction", and of techniques still being developed - such as the coupled cluster method. Non-specialists will find this section particularly useful as a guide to the wide variety of methods now available.

This book should be of interest to all researchers whose work brings them into contact with accurate molecular quantum mechanical calculations. However, Dr Wilson has assumed considerable background in molecular quantum chemistry - for example, readers would need some training in group theory to appreciate the chapter on group theoretical aspects.

Michael Robb

Michael Robb is lecturer in chemistry at Queen Elizabeth College, London.

BOOKS

CHEMISTRY

Reaction patterns

Techniques in Organic Reaction Kinetics
by Petr Zuman and Ramesh Patel
Wiley, £57.25
ISBN 0 471 03556 4
Pictorial Orbital Theory
by John Tedder and Anthony Nechvatil
Plenum, £14.95 and £4.95
ISBN 0 273 02265 2 and 01902 3

Organic chemists spend a good deal of their time thinking about the mechanisms of reactions - the intricate details of the making and breaking of bonds on the route from starting materials to products. It is no longer sufficient just to know that a reaction occurs; one also seeks to know how. An understanding of mechanism leads to the perception of broad patterns of reactivity, common themes underlying the variations of many individual reactions. In turn, such perception provides a basis for prediction - the known shedding light on the unknown.

For many of us, mechanistic studies are largely an esoteric intellectual exercise, rationalizing a newly discovered reaction or developing a hypothetical pathway to a novel compound. For this, one requires no more than a pencil and paper and a knowledge of the rules of the game. However, before we can play the game, someone has had to establish the rules. The task is often formidable. In considering it, we must face a fundamental dichotomy that permeates the whole of chemistry - namely, that the world we think about is not the world we see. We observe the macroscopic world of beakers and gas lines and spectrophotometers, but we imagine reactions that take place in the microscopic world of electrons and atoms and molecules. The two books discussed here approach the study of mechanism from opposite worlds: one is based firmly in the laboratory, the other in rigorous quantitative measurement; the other is based in the mind, constructing images of whirling clouds of electrons. Both have the same end in view - a deeper understanding of how a reaction takes place.

Almost all we know about reaction mechanisms comes from the study of reaction kinetics. At the macroscopic level, we measure the concentrations of reactants or products or intermediates compounds as they change during the course of a reaction. At the microscopic level, we hypothesize that the rate of a reaction between two compounds depends on the rate at which their molecules collide, and that this is proportional to their concentrations. There are thus two aspects to kinetic investigations: the experimental measurement of concentrations, and the analysis and interpretation of the results in molecular terms. Although it is astonishing that so fundamental an area of chemistry as a new book can appear that has by competitors, Zuman and Patel's book is almost alone in treating both aspects of organic reaction kinetics: measurement and analysis. It is fortunate, therefore, that the authors have provided a text that is both comprehensive and concise, reliable and readable.

A knowledge of the basic theory of reaction kinetics is assumed; the book would be intelligible to first-year undergraduates, but must be required reading for any young research worker about to embark on kinetic studies. After a brief introduction, there are three substantive chapters: "Techniques in Reaction Kinetics", "Analysis of Kinetic Measurements", and "Study of Fast Reactions". The techniques chapter begins with a short comment on the accuracy of kinetic measurements. Many factors can influence the rate of a reaction and control them is sophisticated terminology. The authors point out that published kinetic data may be used by many later researchers, who need to be able to interpret the original results in

terms of their own requirements. The bulk of the chapter is devoted to methods of measuring concentrations, from some of the traditional analytical techniques we learned at school to spectroscopic properties of the reacting compound. In each case, the authors give a brief description of the method, explain the circumstances under which it would be appropriate to use it, and show how the experimental observations are related to concentration. The last chapter would seem to follow naturally on from this one, describing the special techniques that are needed to follow very fast reactions, reactions whose rates may, in the extreme, be limited only by the speed at which molecules can diffuse together.

The analysis chapter (all 200 pages of it) begins by showing in detail how the intermittent measurements of concentration and time can be converted into rate equations that describe the rate of change of concentration as a continuous process; and we must then relate these macroscopic equations to the microscopic behaviour of the reacting molecules. Such an analysis can tell us, for example, that a molecule of A reacts with one of B and that the product of that step reacts more slowly with a third molecule, C. To obtain a still deeper understanding, we must discover how the rate is affected. We might change a hydrogen atom for one of deuterium (heavy hydrogen); if the reaction is retarded, it indicates that the bond to the hydrogen atom is being broken during the "rate-limiting step" of the reaction. We might attach an electron-attracting group to one of the reacting molecules; if the reaction is accelerated, it points to a build-up of negative charge on that molecule. We might change the solvent from water to alcohol; a change in rate can be interpreted in terms of the electrostatic interactions between the reacting molecules and those of the solvent. We might change the temperature of the reaction; a detailed analysis of the results can show whether old bonds are broken before new ones are made or vice versa.

Richard Jones

R. A. Y. Jones is dean of the school of chemical sciences at the University of East Anglia.

Precise analysis

Statistics for Analytical Chemistry
by J. C. Miller and J. N. Miller
Ellis Horwood, Wiley,
£18.50 and £7.90
ISBN 0 85312 662 3 and 653 0

It is always difficult in a cross-disciplinary book to achieve a balance between two main subject areas. Such books are usually intended for exponents of one of the disciplines who wish to make use of the other. The reader in such cases may not want a very rigorous treatment of the second subject, nor does he want a trivialized account which produces any reliable use of the discipline. The authors of this book, written primarily for analytical chemists, have succeeded admirably in producing a very readable and useful introduction to statistical methods. This they have achieved with a very light touch, avoiding the introduction of a heavily mathematical background, yet still allowing the reader to see clearly the value of statistical techniques.

Chapter one introduces the various types of error and distinguishes carefully between the meanings, in this context, of accuracy and precision. Here, the authors also emphasize the importance, but so often neglected, point that one should consider the use of statistical methods before doing an experiment. Chapter two deals with normal distribution, confidence limits and the propagation of errors; chapter three with significance tests. Chapter four, on linear regression analysis, should be compulsory reading for all those who use the now ubiquitous linear regression routines on calculators and computers. The chapter ends with a brief discussion of curvilinear regression; this, however, could have been expanded, as it is difficult to find elementary material in this area. Chapter five introduces a few of the many statistical methods which do not assume a Gaussian distribution, such as the sign test and various ranking tests. The short section on non-parametric regression methods - in particular, the "incomplete" method, should be of interest to experimental-

Detailed mechanistic studies have been carried out for only a limited number of reactions. The insight we have thereby gained has provided the rules for the rationalizations and predictions to which I have already referred. For many years, organic chemists have delighted in these pastimes, usually relying on a technique known as "curly arrow chemistry", whereby the various possible rearrangements of bonds are traced by arrowsavoring across the page. This qualitative approach derives from a mathematical theory of molecular structure that emphasizes the role of the chemical bond.

An alternative, more widely used, theory is based on the concept of molecular orbitals - clouds of electrons moving around the atomic nuclei of the molecule. Sophisticated molecular orbital calculations are beginning to provide a new way of studying reaction mechanisms. Instead of probing the energetics of a reaction as it takes place in the laboratory, we can construct a mathematical model of the process in a computer and thence deduce the most favourable reaction path. Until recently, qualitative versions of this approach have been used for only a limited number of reaction types, ones for which the curly arrow symbolism was less than satisfactory.

Tedder and Nechvatil show how pictorial representations of molecular orbitals can be used in place of curly arrows for the whole range of organic reactions, often providing deeper insight into their behaviour. This book again requires an initial grounding in chemistry and is aimed at and beyond second-year undergraduates. It is not easy to discard the habits of a lifetime, and the development of the pictorial orbital approach will not abolish curly arrows. However, even the most hardened arrow-pushers will benefit from the book: at the very least it will add variety to their doodle pads.

Richard Jones

R. A. Y. Jones is dean of the school of chemical sciences at the University of East Anglia.

ists more accustomed to the parametric regression methods of the previous chapter.

Chapter six, rather ambitiously entitled "Experimental design, optimization and pattern recognition", provides an introduction to some techniques, to a number of powerful techniques and directs the reader to sources of further information which would be necessary to make substantial use of those techniques. The chapter ends with a section on sampling; however, although the authors admit that sampling is of fundamental importance to the analyst, it is unfortunate that readers not willing to struggle through this rather more taxing chapter might miss any discussion of the statistical implications of this very important topic.

There are two appendices: the first usefully summarizes various statistical tests and the circumstances under which they can be used; and the second summarizes various statistical tables. Each chapter concludes with a set of exercises and a bibliography. The examples are well chosen over a wide range of analytical applications; and solutions (with helpful discussions) are given at the end of the book.

The lucid style of this book would make it an excellent student text for courses in chemistry or related subjects, either at the undergraduate or postgraduate level. In addition, many experimentalists, who would not normally regard themselves as analytical chemists, will find it a useful guide to statistical methods.

Maurice Shepherd

Maurice Shepherd is lecturer in chemistry at the University of St Andrews.

R. A. Y. Jones has published a set of problems to complement his textbook *Physical and Mechanical Organic Chemistry* (Cambridge University Press, second edition, 1984; reviewed on May 23, 1984). The pamphlet is available price £2.00 (plus 30 pence postage in Britain) direct from Dr Jones, School of Chemical Sciences, University of East Anglia, Norwich NR4 7TJ.

Oxford University Press has published a solutions manual to accompany Donald A. McQuarrie's *Quantum Chemistry* (reviewed on September 2, 1983) at £11.95.

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SYMMETRY AND STRUCTURE

by S. F. A. Kettle, School of Chemical Sciences, University of East Anglia, Norwich

This book is designed to provide the student of chemistry with an introduction to group theory. The author emphasizes the concepts and applications of group theory rather than the mathematics, which are treated in some depth in the appendices. This approach will enable the student to understand and apply group theory earlier than is now common.

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by A. J. Pearson, Department of Chemistry, Case Western Reserve University, Cleveland, Ohio

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Molecular fluids

Theory of Molecular Fluids
Volume one: Fundamentals
by C. G. Gray and K. E. Gubbins
Clarendon Press: Oxford University Press, £60.00
ISBN 0 19 855602 0

Statistical mechanics provides the link between a system's microscopic properties which may be conveniently characterized by an intermolecular potential, and the macroscopic properties such as may be measured in a laboratory experiment. Although much of the underlying mathematics was established 50 years ago, the complexity of the problems that may be successfully handled by statistical mechanics has increased dramatically in recent years and it is no accident that the difficulty of the problems has kept pace with the numerical power of digital computers. By 1975, theoretical techniques had been successfully applied to atomic fluids (argon is the typical example) at gaseous densities and it now seems that

most of the problems associated with atomic liquids have been overcome. The theoretical description of equilibrium properties, especially at liquid densities, of molecular fluids composed of small molecules, which is currently receiving much attention, defines the scope of this book.

It might seem a trivial progression from argon to molecular fluids, of which nitrogen is the simplest and most studied. However, whereas for argon the distance separating the spherically symmetric atoms is the most important parameter for nitrogen four additional angles are required to describe the orientation, and for non-linear molecules like methane, one distance and six angles need to be considered. Polarity presents additional problems for any hetero-atomic molecule. Just as a diatomic like HCl has a permanent dipole resulting from the asymmetry of the electron distribution, so molecules of carbon dioxide, methane and sulphur hexafluoride (all much studied molecular fluids) have a permanent quadrupole, octapole and hexadecapole, respectively. These permanent multipoles clearly lead to preferred orientations between molecules and to interactions that are strongly angle dependent.

Less obvious are some of the

modifications to macroscopic properties; for example, one expects higher multipoles, with their shorter range interactions, to have less influence. The phase behaviour of mixtures of non-polar fluids, however, is modified only in detail by the presence of dipoles, whereas quadrupolar fluids can have phase diagrams that are different in principle. The theoretical description of molecular fluids would rapidly become intractable if it were necessary to treat these angle-dependent effects by conventional methods. Fortunately, past generations of mathematicians have come to the rescue with their highly developed algebra in the form of spherical harmonics, which allow, for example, the complicated behaviour of a multipole to be represented by a well-behaved expression. More generally, the true intermolecular potential is usually approximated by a series of terms; if these are expressed as spherical harmonics, most of the mathematical operations are greatly simplified.

The final complication arises from the small intermolecular separations typical of liquids. It is easy to write down the expressions representing the various types of interactions between the molecules, but for practical calculations, even with the latest com-

puters, some short-range interactions have to be omitted. But will the neglected terms be negligibly small? It is usually necessary to restrict the intermolecular potential to interactions between pairs of molecules; but although this is perfectly adequate in the dilute gas, correlations must be applied at other densities. For atomic fluids, the true pair potentials are known experimentally and the corrections work well, but the comparable experimental work is lacking for molecular fluids and the use of the corrections is to some extent an act of faith.

The absence of experimental results has inhibited rather than prevented theoretical progress, because the study of liquids progresses in three broad areas that are related in an interesting and useful way. The two extremes are laboratory experiments and statistical mechanical theories; the middle ground is occupied by computer simulations which may be regarded as a special kind. Comparison of laboratory experiments with statistical mechanical predictions tests both the statistical mechanics and the intermolecular potential embedded in the theory. By contrast, given an intermolecular potential, which need not be

particularly realistic, comparison between computer experiments and theory tests only the statistical mechanics, as the potential is the same in both cases. The final choice, simulation and experiment, tests only the potential.

The highly specialized subject of the statistical mechanical theory is dealt with in great detail in this book. The treatment is necessarily very mathematical, and although much of the mathematics has been presented in the form of extensive appendices containing, in addition to detailed derivations, some of the more important results, succinct descriptions of basic techniques such as tensors and spherical harmonics, the book cannot be described as easy reading. However, the authors have nevertheless provided an excellent and comprehensive description of the fundamentals of the statistical mechanics as applied to molecular fluids. As the second volume, on liquids, should appear to a wider audience, including experimentalists, it will be awaited with interest.

M. B. Ewing

M. B. Ewing is lecturer in chemistry at University College, London.

BOOKS

CHEMISTRY

Light work

Polymer Photophysics and Photochemistry: An Introduction to the study of photoprocesses in macromolecules
by James Guillet
Cambridge University Press, £45.00
ISBN 0 521 23506 5

When substances absorb energy in the form of heat or electromagnetic radiation, chemical reaction frequently takes place. For the former agency, the situation is non-selective, whereas for the latter it is possible to excite specific groups within a molecular structure, thereby allowing means for targeting those groups and localizing any chemical reaction which follows radiation. As the ability for a chemist to choose the site of reaction is highly desirable, photochemistry has been a major topic of study for a number of years. Photochemistry is a necessary precursor to photochemistry, since the initial interaction of radiation with an absorbing species is a physical process; and in many instances the absorbed energy is dissipated by physical means before chemical reaction can occur.

Whereas a number of books have been written on the photophysics and photochemistry of small molecules,

Professor Guillet's text is an introduction to the study of photoprocesses in macromolecules (or polymers). In order not to repeat what has been adequately covered in a number of other texts, Professor Guillet has had to justify treating macromolecules as a separate topic; and he has achieved this by logical and lucid argument.

This theme of the special properties of polymers in both the solid and liquid state runs through Professor Guillet's own research work, which he frequently cites. His contributions to this area of polymer science are internationally recognized - in particular, his proposed antenna effect in which he develops the concept of using synthetic macromolecules incorporating energy-collecting groups around reactive centres with a view to mimicking aspects of plant photosynthesis. I particularly like the way in which the author outlines in simple terms the basic principles of the physical properties of polymers as a prelude to a discussion of more advanced aspects of their photochemistry. The differences, photochemical and photophysical, between macromolecules and their small molecule analogues are described and discussed in terms of concepts developed lucidly within the text.

One of the great advantages of carrying out research in polymer science is the ease with which it is possible to relate basic academic investigations to real-life processes. Guillet's objective of mimicking photosynthesis - at least in a modest way - is one that a number of research groups are pursuing. There are, however, many other applications for the subject-matter of this book: photo-copying, photo-lithography, the production of photo-resists for the microelectronics industry, and the fabrication of solar cells. Sunlight in fact is electromagnetic radiation

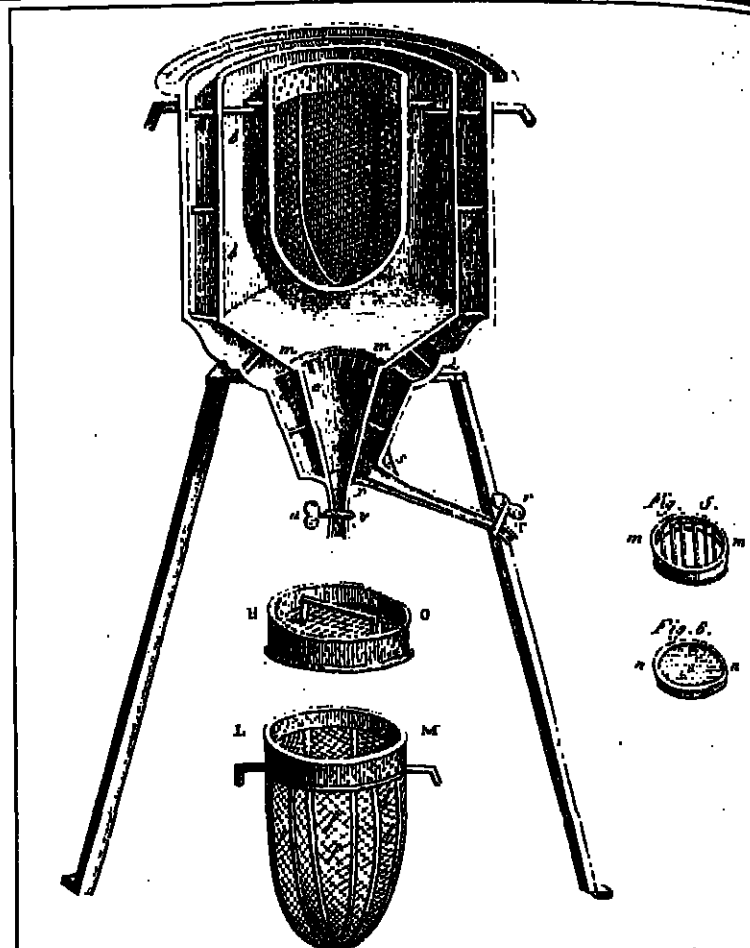
spanning a spectrum of energies, a good proportion of which can bring about chemical change by less sophisticated mechanisms than photosynthesis. As plastics and paints are mixtures of substances the bulk of which are polymers, photo-induced deterioration provides a good example of the manifestation of processes explained in this book. In some instances, decomposition of plastics is planned, and the author gives examples of how basic studies have been used to design materials with limited life-time in outdoor use. Indeed, in recent times, the increasing use of plastics in the space shuttle programme has demonstrated the significance of understanding the interaction of higher-energy radiation with such materials. For this reason, the chapter briefly analysing the effects of gamma- and x-rays on polymers and relating this to how ultraviolet radiation operates, will be particularly useful.

As this book casts new light on many aspects of the field, even for experienced researchers, it must be compulsory reading. And although few universities or colleges specifically teach the photochemistry and photophysics of polymers, if that situation should change, then Professor Guillet has provided the basic text.

J. R. MacCallum

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The Royal Society of Chemistry has published the 1984 edition of their *Index of Chemistry Films: a list of films, videotapes, slides, strips, loops, soundtracks, and overhead projector transparencies about chemistry and related topics*. Compiled by J. S. Clarke, the index costs £19.00.



This illustration of the first ice-calorimeter comes from a Dover facsimile edition of Antoine-Laurent Lavoisier's *Elements of Chemistry* (Edinburgh, 1790). Douglas McKie provides an introduction; and the book is published by Constable at £11.95.

A matter of taste

Food: the chemistry of its components

by T. P. Cowell
Royal Society of Chemistry, £5.95
ISBN 0 851 86 483 X

If you suspect, as many chemists in other fields do, that food chemistry is an offshoot of home economics, then the contents of this short paperback will come as a surprise: clearly, like other sciences, food chemistry has moved on a pace during the past decade or so. Written by a senior lecturer in the department of applied biology and forensic science at the Polytechnic of the South Bank, the book provides a detailed account of the chemistry of the principal substances of which food is composed.

Individual chapters cover the detailed chemistry of the main components of food - carbohydrates, lipids and proteins - and of the minor components present: colours, flavours, vitamins and preservatives. The chemical structures of the components are related to their contribution to the properties and behaviour of foodstuffs before, and at the various stages of processing and storage. Intended for

lecturers and teachers preparing food chemistry courses and for students embarking on degree and diploma courses in food science and related subjects, I would also recommend the book to fellow chemists as a means of updating their perspective on the current standing of food chemistry.

The main strength of the book is that it presents a concise but relatively detailed account of food chemistry. Indeed, as the subject in its modern form relies heavily on the application of advanced topics in chemistry and other sciences, readers with only a rudimentary knowledge of modern advanced chemistry will no doubt encounter novel concepts in the text.

In recent decades, there has been a tendency in school chemistry teaching to move rapidly to "real everyday" applications of chemistry before pupils have been introduced to the basic chemistry necessary to appreciate these topics. However, a better balance in sustaining the interests of students of various abilities by introducing topics and projects of everyday importance while moving ahead with the basic theory may now have been attained. Sixth-form teachers (and their students) will therefore find a considerable amount of material here to illustrate the relevance of modern chemistry to one important area of everyday living. For readers with a knowledge of chemistry but with little idea of what modern research in food science has achieved, the delight of this

book is in the many examples given where a chemical explanation is now available to account for common, and some not so common, observations made during food processing and storage. The subject is presented on a firm chemical basis and the use of modern techniques is clearly illustrated.

The introduction of the information on food chemistry into the accounts of the various food constituents, whose structures will be familiar to the general chemist, is fascinating. Particularly good are the descriptions of the chemistry of sugars and lipids; indeed, the basic chemistry in the book is uniformly excellent. Explanations are given for many intriguing facts such as why some ethnic groups have difficulty digesting milk, why beans cause flatulence, why glucose (out of all the sugars) has an almost universal role in living systems, why apples turn brown on being cut, and why bran as dietary fibre is possibly not wholly beneficial. Sweetness, the intricacies of working with chocolate, the production of artificial cherries and pieces of apple, polynutrients, the baking process, and the structure of meat are among many other topics discussed.

A. G. Fogg

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Complex solids

Solid-State Chemistry and Its Applications
by Anthony R. West
Wiley, £37.00
ISBN 0 471 90377 9

Solid-state chemistry is an important branch of the physical sciences that is rapidly acquiring a clear identity. The subject is a fusion of solid-state physics, materials science, crystallography and mineralogy, but in recent years it has become increasingly concerned with the synthesis, characterization and modification of complex solids. A notable feature of the field is its diversity: topical themes at present are zeolite chemistry, ionically conducting solids, and electrically conducting polymers; and there has long been an interest in disordered and non-stoichiometric solids. In addition, solid-state chemists have been particularly enterprising in exploiting modern physical techniques - high resolution electron microscopy, synchrotron radiation techniques, neutron scattering and computer modelling all being used routinely by the community. Moreover, the subject has a large number of applications in, for exam-

ple, catalysis, in energy research, in fine ceramics, and in corrosion studies.

With the emergence of the subject as a well-defined discipline, there is a clear need for a general text written at the advanced undergraduate and postgraduate levels. Writing such a book, however, represents a considerable challenge: the necessary background in solid-state physics and crystallography must be covered; concepts from mineralogy need to be introduced; and the book must review the range of modern physical techniques. Responding well to that challenge, Dr West has produced a wide-ranging yet readable book which will serve the subject for several years.

Most of the material in the first half, on synthetic methods, basic crystallography, structure determination and crystal chemistry, is available in other texts. But by collecting these several topics together, Dr West has performed a useful service. In this part, however, there are some lacunae. For example, the role of neutron scattering in solid-state chemistry is not given sufficient prominence - a point which is especially regrettable in view of the recent availability at the Rutherford-Appleton Laboratories of the spallation neutron source (SNS) which offers to solid-state chemists the prospect of carrying out novel and exciting experiments. Similarly, the extensive use by solid-state chemists of synchrotron radiation sources (available at the Daresbury Laboratory) is not emphasized. This is a pity, as experiments with these intense white x-ray sources will undoubtedly play an increasingly important role in the future development of solid-state chemistry.

The second half of the book examines a number of special topics. Defect structure and non-stoichiometry are dealt with briefly (indeed, many recent developments in this fascinating field are unfortunately ignored), but the remaining chapters are useful. There is an excellent discussion of solid electrolytes; and the chapters on glasses, cements and refractories are particularly good. Important topics are omitted, and despite the disclaimer in the preface, it is impossible not to criticize the exclusion of any discussion of surface chemistry and catalysis, or of the highly topical area of zeolite chemistry. Although in a book of this nature it is obviously necessary to be selective, it is questionable whether the best selection of topics has been presented. It should be possible, however, to provide useful core text from this otherwise very specialized literature.

Richard Catlow

Richard Catlow is lecturer in chemistry at University College London.

BOOKS

CHEMISTRY

Molecular quakes

Molecular Quantum Electrodynamics: An Introduction to radiation-molecule interactions
by D. P. Craig and T. Thirumangalakudi
Academic Press, £38.50
ISBN 0 12 195080 8

Quantum chemistry has three principal branches. One, which receives the largest amount of effort and consumes huge amounts of computer time, is the computation of molecular electronic structure. Here, the aim is to predict the shape and energy levels of a molecule from little more than a list of the atoms present. A second branch, one of increasing importance and one that is accumulating an impressive record of success, is the theory of the mechanisms of the most intimate stages of a chemical reaction, when atoms are being torn from former partners and are beginning to form bonds with new ones. The third branch is the discussion of the ways in which molecules interact with the electromagnetic field. In a sense, this branch deals with the explanation of the ways in which molecules communicate with their surroundings. This third branch of quantum chemistry is the subject of this graduate level text.

Molecules are assemblies of charged particles, their electrons and nuclei

Electronic motions

Molecular Potential Energy Functions
by J. N. Murrell, S. Carter, J. C. Farnham, P. Huxley and J. C. Varandas
Wiley, £19.95
ISBN 0 471 90540 2

Attempts to solve Erwin Schrödinger's equation for molecules were begun very shortly after the invention of quantum mechanics. Central to those attempts was an idea first clearly formulated by Max Born and Robert Oppenheimer, who advanced arguments that made it seem possible that electronic motions could often be reasonably well separated from the motions of the nuclei. At an informal level, it can be said that these arguments depend on the enormous ratio of the mass of a nucleus to the mass of an electron. The model can therefore be considered as moving very slowly compared with the electrons and can, at least approximately, be treated classically.

The way to obtain solutions of Schrödinger's equation for molecules

of the atoms present. The nuclei are heavy and relatively immobile, and for many purposes can be regarded as providing a stationary platform for the motion of the electrons. The nuclei can therefore be largely ignored, except for their cancellation of the electron's negative charges when viewed from a sufficient distance, and attention can centre on the motion of the electrons.

The electrons are negatively charged and, in a certain sense, mobile. When they move, they shake the surrounding electromagnetic field into oscillation, and a photon brings to the observer the message that describes the motion. Similarly, we can transmit a photon into a molecule, and cause the electrons to move. In these examples, the communication between the molecule and the observer gives rise to one of the many varieties of spectroscopy, in which a photon is generated or absorbed. In other cases, the incident photon might simply bounce off the molecule, but in its collision collect information and bring it to the observer. Sometimes the information is quite subtle, such as when the plane of polarization of the photon is changed by the impact; and the observation of that change - called "optical activity" - reveals details of the molecule's symmetry. In yet other cases, no external generator or absorber of photons is involved, but the electrons in another molecule nearby shake and shudder off a photon, which is captured by another molecule with another molecule-quake. This interaction draws the molecules together and an observer reports the existence of an intermolecular force: such forces carried by photons are responsible for the cohesion of much of the matter that surrounds us.

All these processes, the spectroscopic scattering, and the intermolecular forces, together with subtle variations of the theme, can be treated using the techniques invented by physicists to deal with the interactions

is then to consider the nuclei as forming a definite geometrical figure and to solve the electronic part of the problem in the classical electrostatic field provided by the nuclei. This process yields an electronic energy appropriate to the chosen geometry. If the classical nuclear repulsion energy is added to the electronic energy, then a value of the potential energy function is obtained at the chosen geometry. By considering all possible nuclear geometries, the complete potential energy function can be constructed.

The idea of electron-nucleus separation and the consequent idea of a potential energy function has proved an extremely fruitful one, not only in understanding the structure and spectra of individual molecules but also in understanding intermolecular forces and even chemical reactions. It is no exaggeration to say that if one does not believe in the potential energy function, then it is impossible to understand modern chemistry.

It is the custom simply to assume that there is a potential energy function which is appropriate to the interaction of a particular set of external observations (for example, a molecular spectrum) and to try to understand and relate the observations one to another in terms of the presumed properties of that assumed function. Ideally, one would like to

of elementary particles. However, there is a great simplification: the electrons in most molecules are moving slowly enough for relativistic effects to be unimportant, and so the equations can be expressed using non-relativistic quantum mechanics. The general structure of the equations remains the same, and diagrammatic techniques can be used to systematize the book-keeping (and to make the processes more physically tangible); but complicating questions of covariance can be ignored. The great strength of the diagrammatic method of this enunciated quantum electrodynamics (QED) is the ease with which it can be extended to deal with the new phenomena that are becoming available to chemists - such as lasers which provide electric fields that impose more stress on molecules and hence reveal more of their constitution. Above all, QED makes the description of electromagnetic phenomena systematic and logical, and provides a framework for obtaining insight into the processes involved.

Craig and Thirumangalakudi's book explains the calculation (as distinct from computational) techniques with the greatest clarity. It is a highly technical text, yet begins at basic quantum mechanics and develops all that is necessary of QED to embark on calculations. The authors drive a straight path through the marsh of complication that could have swallowed them, yet does not. Any dedicated reader will appreciate the workmanlike tone of this detailed text. Altogether, it is excellent and has been produced to a very high standard.

P. W. Atkins

P. W. Atkins is university lecturer in physical chemistry and a fellow of Lincoln College, Oxford.

know the complete potential energy function for a system of atoms, so as to be able to relate all the appropriate observations one to another; the construction of such a function, however, is a very difficult matter. Actually, to calculate it from first principles is both time-consuming and expensive, even in the simple cases in which it can be done with reasonable accuracy. To determine it from a subset of the experimental observations is equally difficult, because experiment generally provides only local (and often ambiguous) knowledge of the function which it is hard to clarify and extend.

The art of guessing suitable potential energy functions has gradually become an important movement in molecular physics, and this book may be regarded as the manifesto-cum-instruction manual of one school of practice in that art. Indeed, the authors tell us, in effect, how they think that we ought to paint their kind of pictures. They explain in some detail how they produced their own successful scenery pieces and share with us some insights into the snags that they encountered in painting them. They end the book with a cartoon of a religious cast appealing for simplicity and an epilogue expressing both anxiety about the very possibility of painting such pictures for systems with more than four atoms and the pious hope that salvation may lie in computer databases.

The guide would have been more valuable if the authors had extended more widely the Pre-Raphaelite attention to detail that they show in some parts of the book. On page four, for example, we are told that the Morse potential does not have the correct asymptotic behaviour, but on page five (and thereafter) that it does. Other examples of this sort of inconsistency, however, merely mar the book; they do not flout it fatally. If you want to be the authors' lookout of how to do it as is generally available.

Brian Sutcliffe

Brian Sutcliffe is reader in chemistry at the University of York.

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The Senate invite applications for a Readership in Plant Biochemistry, tenable at Royal Holloway and Bedford Colleges, from 1st October 1985. The successful candidate will be expected to share in the teaching of plant biochemistry and have research experience in the field. The candidate should also have a good knowledge of the English language and be able to teach at the undergraduate level. The salary is £15,000 per annum plus a research allowance of £2,000 per annum. The successful candidate will be expected to spend about half their time in research in association with one of the department's research groups, and would be encouraged to register for part-time study towards a research degree.

Further information may be obtained from the Academic Personnel Office, University of London, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50577) B1

University of London
READERSHIP
IN PLANT
BIOCHEMISTRY
TENABLE AT
ROYAL HOLLOWAY
AND BEDFORD
COLLEGES

The Senate invite applications for a Readership in Plant Biochemistry, tenable at Royal Holloway and Bedford Colleges, from 1st October 1985. The successful candidate will be expected to share in the teaching of plant biochemistry and have research experience in the field. The candidate should also have a good knowledge of the English language and be able to teach at the undergraduate level. The salary is £15,000 per annum plus a research allowance of £2,000 per annum. The successful candidate will be expected to spend about half their time in research in association with one of the department's research groups, and would be encouraged to register for part-time study towards a research degree.

Further information may be obtained from the Academic Personnel Office, University of London, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50578) B1

University of London
READERSHIP
IN PLANT
BIOCHEMISTRY
TENABLE AT
ROYAL HOLLOWAY
AND BEDFORD
COLLEGES

The Senate invite applications for a Readership in Plant Biochemistry, tenable at Royal Holloway and Bedford Colleges, from 1st October 1985. The successful candidate will be expected to share in the teaching of plant biochemistry and have research experience in the field. The candidate should also have a good knowledge of the English language and be able to teach at the undergraduate level. The salary is £15,000 per annum plus a research allowance of £2,000 per annum. The successful candidate will be expected to spend about half their time in research in association with one of the department's research groups, and would be encouraged to register for part-time study towards a research degree.

Fellowships

Massey University
Palmerston North,
New ZealandU.G.C.
POST-DOCTORAL
FELLOWSHIPS

Applications are invited for Post-Doctoral Fellowships in the Department of Mathematics, awarded by the University Grants Committee and the University Grants Committee. The successful candidate will be expected to spend about half their time in research in association with one of the department's research groups, and would be encouraged to register for part-time study towards a research degree.

Further information may be obtained from the Academic Personnel Office, Massey University, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50579) B1

University of
OtagoPOST-DOCTORAL
FELLOWSHIPS

Applications are invited for Post-Doctoral Fellowships in the Department of Mathematics, awarded by the University Grants Committee and the University Grants Committee. The successful candidate will be expected to spend about half their time in research in association with one of the department's research groups, and would be encouraged to register for part-time study towards a research degree.

Further information may be obtained from the Academic Personnel Office, University of Otago, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50580) B1

University of
OtagoPOST-DOCTORAL
FELLOWSHIPS

Applications are invited for Post-Doctoral Fellowships in the Department of Mathematics, awarded by the University Grants Committee and the University Grants Committee. The successful candidate will be expected to spend about half their time in research in association with one of the department's research groups, and would be encouraged to register for part-time study towards a research degree.

Further information may be obtained from the Academic Personnel Office, University of Otago, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50581) B1

University of
OtagoPOST-DOCTORAL
FELLOWSHIPS

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Further information may be obtained from the Academic Personnel Office, University of Otago, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50582) B1

University of
OtagoPOST-DOCTORAL
FELLOWSHIPS

Applications are invited for Post-Doctoral Fellowships in the Department of Mathematics, awarded by the University Grants Committee and the University Grants Committee. The successful candidate will be expected to spend about half their time in research in association with one of the department's research groups, and would be encouraged to register for part-time study towards a research degree.

Further information may be obtained from the Academic Personnel Office, University of Otago, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50583) B1

University of
OtagoPOST-DOCTORAL
FELLOWSHIPS

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Further information may be obtained from the Academic Personnel Office, University of Otago, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50584) B1

University of
OtagoPOST-DOCTORAL
FELLOWSHIPS

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Further information may be obtained from the Academic Personnel Office, University of Otago, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50585) B1

University of
OtagoPOST-DOCTORAL
FELLOWSHIPS

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Further information may be obtained from the Academic Personnel Office, University of Otago, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50586) B1

University of
OtagoPOST-DOCTORAL
FELLOWSHIPS

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Further information may be obtained from the Academic Personnel Office, University of Otago, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50587) B1

University of
OtagoPOST-DOCTORAL
FELLOWSHIPS

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Further information may be obtained from the Academic Personnel Office, University of Otago, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50588) B1

University of
OtagoPOST-DOCTORAL
FELLOWSHIPS

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Further information may be obtained from the Academic Personnel Office, University of Otago, 100 Brook Road, Cambridge CB2 3RQ. Closing date 15 June 1985. (50589) B1

Polytechnics

HONG KONG BAPTIST COLLEGE

Hong Kong Baptist College is, since 1983, one of the five publicly-funded institutions of the University and Polytechnic Grants Committees.

The College is currently offering 3-year post-graduate level courses and will shortly be offering Bachelor's degree courses in selected areas of study. A phase of rapid academic development is envisaged. Major redevelopment and expansion of the college campus will continue from 1985 onwards; a seven-story Library Building - estimated to increase to at least 3,000 over the next six years and diversification of research activities will occur. Applications are now invited for several academic positions in the Business Faculty and Science Faculty tentable in September 1985.

In addition, a certain number of one-year Fellowships funded by the University of Otago will be available.

In making its awards the University Grants Committee will give priority to current growth research areas such as biotechnology, genetic engineering, electronics, etc., and applications from those wishing to work in any of these areas will be considered.

The emolument payable will be a rate to be determined by the University Grants Committee and will not exceed the lowest step on the University scale for lecturers (currently NZ\$52,682 per annum).

Applicants should have completed the requirements for the award of the degree of Doctor of Philosophy.

Application forms and further details are available from the Registrar, University of Otago, P.O. Box 56, Dunedin, New Zealand. Reference ABB/100. Closing date 14 June 1985. (50579) B1

Applicants should have completed the requirements for the award of the degree of Doctor of Philosophy.

Application forms and further details are available from the Registrar, University of Otago, P.O. Box 56, Dunedin, New Zealand. Reference ABB/100. Closing date 14 June 1985. (50580) B1

Applicants should have completed the requirements for the award of the degree of Doctor of Philosophy.

Application forms and further details are available from the Registrar, University of Otago, P.O. Box 56, Dunedin, New Zealand. Reference ABB/100. Closing date 14 June 1985. (50581) B1

Applicants should have completed the requirements for the award of the degree of Doctor of Philosophy.

Application forms and further details are available from the Registrar, University of Otago, P.O. Box 56, Dunedin, New Zealand. Reference ABB/100. Closing date 14 June 1985. (50582) B1

Applicants should have completed the requirements for the award of the degree of Doctor of Philosophy.

Application forms and further details are available from the Registrar, University of Otago, P.O. Box 56, Dunedin, New Zealand. Reference ABB/100. Closing date 14 June 1985. (50583) B1

Applicants should have completed the requirements for the award of the degree

Polytechnics continued

KINGSTON
POLYTECHNICFaculty of Business and Social Science
School of Economics and PoliticsLECTURER II/SENIOR
LECTURERS IN ECONOMICS

The successful candidate will join a team of over 20 Economists teaching on a wide range of courses in Economics, Business and Social Science at the BTEC, undergraduate and postgraduate levels. They will be expected to teach Economics at Introductory and Intermediate levels, and offer specialist teaching at final year level. Applications from Economists with expertise in any area of Economics are welcome especially in one or more of the following areas: Development Economics; Managerial Economics/Economics of Corporate Decision-making; European Economics.

Applicants should have a higher degree in Economics and be familiar with the use of computers in Economics, Research, teaching or other experience in the private or public sectors will be an advantage.

Salary range Lecturer II/Senior Lecturer £8,228-£14,739 including London Allowance.

Details and application forms (to be returned by 23rd May) from Personnel Officer, Kingston Polytechnic, Penrhyn Road, Kingston upon Thames KT1 2EE. Tel: 01-848 1386, Ext. 267.

Late applicants may be considered up to final short listing. (70235)

OXFORD
POLYTECHNICDepartment of Mathematics,
Statistics & ComputingLECTURER II/
SENIOR LECTURER/
PRINCIPAL LECTURER
IN COMPUTER STUDIES

Posts No. MSC/CS

Two new teaching posts have been created from 1st September, 1985, as a result of increased student numbers in the Department. Applications are invited from candidates with appropriate experience in education, research or industry to teach in Honours Degree level in Computer Studies.

The Department has an active research programme centred on collaboration with other establishments, and it is keen to develop further the areas of Statistical Science and Computing, data bases and this research programme. The successful candidate will be expected to contribute to the development of research and to the development of research student supervision.

Applications are particularly welcomed from persons completing a Higher Degree or those with current commercial or industrial experience.

Salary: Principal Lecturer: £13,000-£16,467 (under review)
Senior Lecturer: £11,178-£14,061 (under review)
Lecturer II: £7,548-£12,096 (under review)

Closing date for completed application forms is 31st May, 1985.

For further details and application forms please apply to the Staffing Office, Oxford Polytechnic, Gypsy Lane, Headington, Oxford OX3 0BP. Telephone: Oxford 84777, Extension 364. Equal opportunities employer. (70262)

Coventry (Lanchester)
Polytechnic

Faculty of Applied Science

LECTURER II/
SENIOR LECTURER
MATHEMATICS

£7,548-£12,096 (under review)
£11,178-£14,061 (under review)

Please contact Dr. J. O. Davies, Head of Faculty, for an informal discussion. Closing date: 31st May 1985.

As an Equal Opportunity Employer. (70261)

Middlesex Polytechnic

Middlesex Business School

PART-TIME
LECTURERS
IN OPERATIONS
MANAGEMENT,
OFFICE SERVICES,
MARKETING
AND ORGANISATION
BEHAVIOUR

Are required for the session commencing September 1985. For further details and application forms please apply to the Staffing Office, Middlesex Polytechnic, Gypsy Lane, Headington, Oxford OX3 0BP. Telephone: Oxford 84777, Extension 364. Equal opportunities employer. (70262)

THE POLYTECHNIC OF WALES
POLYTECHNIC CYMRUDEPARTMENT OF ESTATE
MANAGEMENT AND QUANTITY
SURVEYINGPRINCIPAL LECTURER IN
ESTATE MANAGEMENT

Applications are invited for the above post, from graduates who are corporate members of the General Practice Division of the Royal Institute of Chartered Surveyors.

It is anticipated that the successful candidate will have had extensive experience in professional practice, research, academic and course development. The candidate will play a major role in the design of an honours degree course, as a development of the existing degree course in Estate Management.

Salary: £13,000-£16,467 per annum inclusive (under review).

For further details and application forms please apply to the Staffing Office, Polytechnic of Wales, Penrhyn Road, Kingston upon Thames KT1 2EE. Tel: 01-848 1386, Ext. 267. Closing date: 31st May 1985. (70263)

The Polytechnic
of Wales

For details about SERC studentships contact Information Technology Studentships, Science and Engineering Research Council, North Star Avenue, SWINDON SN2 1ET. Telephone: 0793 26222 Ext 2137

Polytechnic of
Central LondonFaculty of Social Sciences and
Business StudiesPART-TIME
LECTURERS

Applications are invited for a number of part-time teaching posts. The Faculty has a strong evening school encompassing professional courses and part-time degree courses at both undergraduate and postgraduate level.

Further details and application forms will be sent on request. Closing date: 31st May 1985.

As an Equal Opportunity Employer. (70261)

Middlesex Polytechnic

Middlesex Business School

PART-TIME
LECTURERS
IN OPERATIONS
MANAGEMENT,
OFFICE SERVICES,
MARKETING
AND ORGANISATION
BEHAVIOUR

Are required for the session commencing September 1985. For further details and application forms please apply to the Staffing Office, Middlesex Polytechnic, Gypsy Lane, Headington, Oxford OX3 0BP. Telephone: Oxford 84777, Extension 364. Equal opportunities employer. (70262)

City of Birmingham
PolytechnicAn Equal Opportunity
EmployerFaculty of The Built
EnvironmentDepartment of Construction &
SurveyingSENIOR LECTURER
IN CIVIL
ENGINEERING

Required for 1st September, 1985, to teach Civil Engineering subjects to a range of courses, mainly BTEC Civil Engineering Studies with some postgraduate work.

Applications are invited from suitably experienced graduates and/or Chartered Civil Engineers.

Salary Scale: Senior Lecturer: £11,178-£14,061 (under review)

Further details and application forms from: The Personnel Officer, City of Birmingham Polytechnic, 2nd Floor, City Hall, Birmingham B4 6AT. Tel: 01-242 5124. Closing date: 31st May 1985. (70264)

Courses

For details about SERC studentships contact Information Technology Studentships, Science and Engineering Research Council, North Star Avenue, SWINDON SN2 1ET. Telephone: 0793 26222 Ext 2137

"WANT TO WORK
IN INFORMATION
TECHNOLOGY?"
"NO IT
QUALIFICATIONS"

The Science and Engineering Research Council has an answer: Studentships for postgraduate conversion courses for up to one year.

They are for graduates in management and the arts, as well as science and engineering, and the courses are of industrial and commercial relevance. IT covers information acquisition, handling and use involving the latest technologies in microelectronics, computing and telecommunications.

Applicants will need a good honours degree or an equivalent combination of qualifications and experience. SERC's one-year studentships on postgraduate conversion courses are part of an IT initiative promoted by the Department of Education and Science.

For details about SERC studentships contact Information Technology Studentships, Science and Engineering Research Council, North Star Avenue, SWINDON SN2 1ET. Telephone: 0793 26222 Ext 2137

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Colleges of
TechnologyCity of Salford
Salford College of
TechnologyCOURSE LEADER IN
FASHION

at Senior Lecturer/Principal Lecturer Grade capable of promoting links with industry and with good organisational experience. Previous teaching experience would be an advantage. Duties to commence in September 1985.

Salary Scale: Senior Lecturer: £11,178-£14,061 (under review)

Further details and application forms from: The Personnel Officer, Salford College of Technology, Frederick Road, Salford M6 6PU. Tel: 01-758 6547. Closing date: 31st May 1985. (70265)

For details about SERC studentships contact Information Technology Studentships, Science and Engineering Research Council, North Star Avenue, SWINDON SN2 1ET. Telephone: 0793 26222 Ext 2137

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Colleges of Further Education

Strathclyde
Department
of Education

Further Education

Applications are invited for the undernoted post. All candidates should have relevant industrial or commercial experience where appropriate. Teacher training would be an advantage but training can be given on an in-service basis.

Senior Lecturers

ELL COLLEGE OF TECHNOLOGY, Alameda Street, Hamilton, H11 9AA. Applications should have an appropriate degree, or equivalent. They should have experience and/or special expertise related to design systems, microprocessor software and applications, or to computer-aided design, manufacture and test. Teaching experience necessary.

GLASGOW COLLEGE OF BUILDING AND PRINTING, 60 North Hanover Street, Glasgow, G1 2EP. Construction, Senior Lecturer/A. Appropriate academic and professional qualifications, preferably to second degree level. High education teaching experience, together with a research interest in other related subjects, is essential. A particular interest in construction materials science and technology is desirable.

SALARY SCALE
Senior Lecturer/A
£12,777-£14,184 (Bar) £16,104

Posting on the salary scale will be given for relevant experience. Form of application and further particulars can be obtained from the Form of the college concerned to whom completed applications should be returned not later than 24 May 1985.

EDWARD MILLER, Director of Education (70266)

For details about SERC studentships contact Information Technology Studentships, Science and Engineering Research Council, North Star Avenue, SWINDON SN2 1ET. Telephone: 0793 26222 Ext 2137

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Colleges of Art

DEAN - SCHOOL OF ART

The Victorian College of the Arts is a college of advanced education conducting courses in the Fine and Performing Arts adjacent to and operating in close liaison with the Victorian Arts Centre. The School of Art conducts courses in painting, sculpture and printmaking at Degree and Graduate Diploma levels.

Duties: To be responsible for the conduct and development of the School of Art.

Qualifications: Applicants should be practising artists of distinction with experience in art education. Evidence of administrative ability is essential.

It is envisaged that an initial appointment will be for 5 years.

Salary: \$66,000.

Detailed information concerning the College, together with conditions of employment have been prepared and should be sought before applying for the position.

Applications marked 'Confidential' should be forwarded to The Staffing Officer, Victorian College of the Arts, 284 St Kilda Road, Melbourne, 3004, Australia by not later than 30 June 1985.

For details about SERC studentships contact Information Technology Studentships, Science and Engineering Research Council, North Star Avenue, SWINDON SN2 1ET. Telephone: 0793 26222 Ext 2137

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